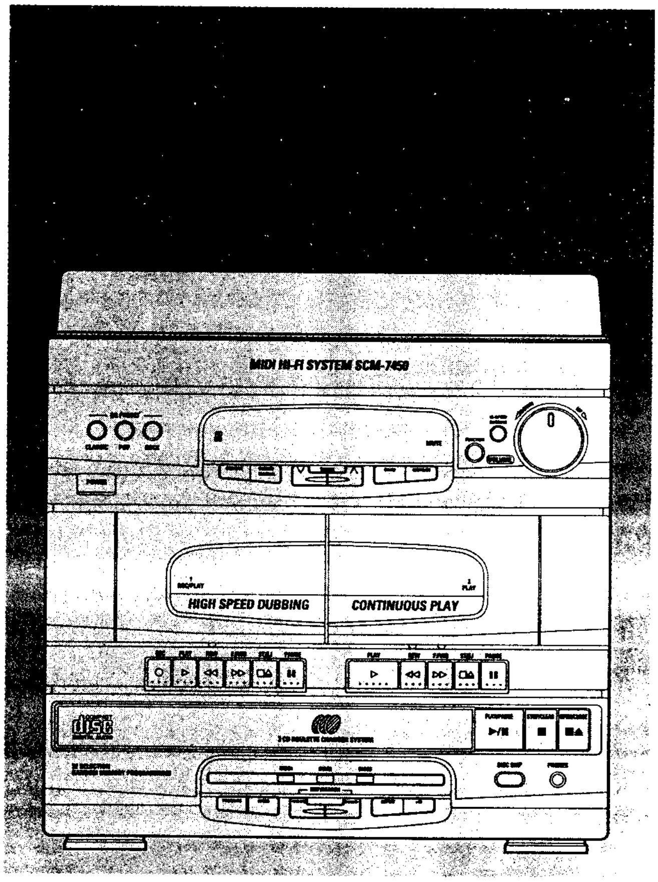
SAMSUNG

STEREO MUSIC CENTER

SCM-7450

SERVICE Manual

STEREO MUSIC CENTER



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- Design and specification are subject to change upon improvement without prior notice.

1. Safety precaution

1-1. Class 1 laser product

This laser disc player is classified as a CLASS 1 laser product.

1-2. Laser warning label

The label shown below may be affixed or not according to country.

(UL)

This Product Complies with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

CLASS 1
LASER PRODUCT

Location: Enclosure back.

(SCAN)

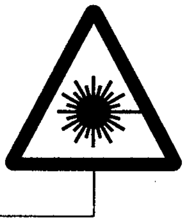
CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATEO AVOIDEXPOSURE TO BEAM

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGA UDSAETTELSE FOR STRALING

VARO: AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NAKYMATTÖMALLE LASERSATEILYLLE ALA KATSO SATEESEEN!

VARNING: OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARREN AR URKOPPLAD BETRAKTA EJSTRÅLEN!

(EU)



UL : Manufactured for U.S.A. Market.
CSA : Manufactured for Canadian Market.
EU : Manufactured for European Market.
SCAN : Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of UNIT door or nearby UNIT chassis.

1-3.Laser beam warning

ADVERSEL –Usynlig saserstråling ved åbning, når Sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

VARNING –Osylig laserstralning när denna del är.öppnad och spärr är urkopplad. Stralen är farlig.

VARITUS –Laite sisältäa laserdiodin, joka lähettää näkymätönta silmille vaarallista lasersateilyä.

CAUTION –Invisible laser radiation when door is open and interlocks defeate. Avoid exposure to beam.

1-4. Laser diode specification (Optical pick-up)

- Material : GaAs+GaAlAs
- Wavelength : 760-800nm
- Emission duration : Continuous
- Laser Output : 0.2mW
  - * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification : CLASS 1

1-5. Warning for servicing

WARNING: When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING: När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för näre häll. If all det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avståand av mer än 30cm (11.81 inch.) fråan den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL: När repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen påa for naer håand. ^t ilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS: Silmiä on varottava viemästä liian läbeile laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta..

1-1-6. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing. (1) Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any remove for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/ capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

(2) Be sure that there are no cabinet openings throught which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

(3) Leakage Current Hot Check-With the instrume-nt completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use a isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON positin and then in the OFF position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis.

Any current measured must not exceed 0.5 millamp. Reverse the instrument power cord plug in the outlet and repeat the test.

See Figure 1.

Any measurements not within the limits specified herein indicate a potential shock hazard that must be ellminated before returning the instrument to the customer.

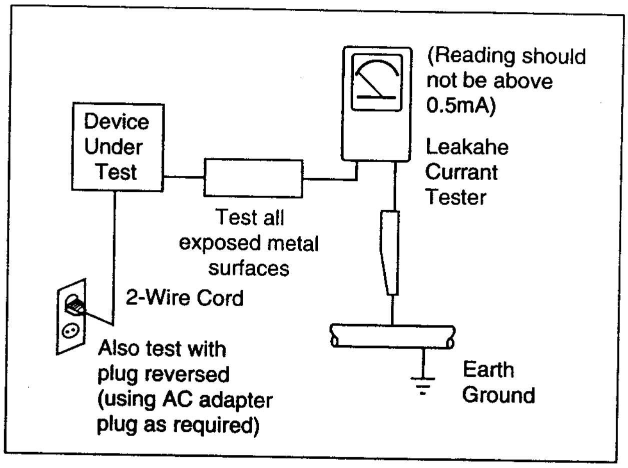

(Reading should not be above 0.5mA)
Device Under Test
Leakahe Currant Tester
Test all exposed metal surfaces
2-Wire Cord
Also test with plug reversed (using AC adapter plug as required)
Earth Ground

FIG. 1 AC Leakage Test

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be repared and rechecked before it is returned to the customer.

See Figure 2.

SERVICE AUDIO-VIDEO
Mirosław Bogórski
ul. Kraszewskiego 31
05-800 PRUSZKÓW
Tel. 728-37-19

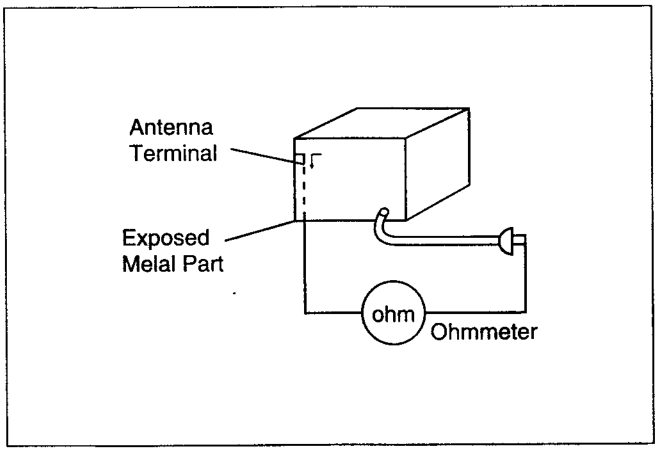


FIG. 2 Insulation Resistance Test

1-1-7. Read and comply with all caution and safety-related notes non or inside the cabinet, or on the chassis.

1-1-8. Design Afteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the servicer, responsible for personal injury or property damage resulting therefrom.

1-1-9. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: (1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between a component and the printed-circuit board. Check the AC power cord for damage.

1-1-10. Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

1-1-11. Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an (*) or a (⚠) on schematisc and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might created shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

2. Servicing notes

2-1. Before servicing the unit

Be sure to observe the safety notes attached on label, chassis, cabinet top, cabinet bottom and printed circuit board.

2-1-1. Caution on laser beammalfunction

Do not try to access objective lens, when DISC is not on the tray.

When pick-up mechanism replacement is required, be sure to turn power off.

2-1-2. When handling parts

Tube, tape or insulating parts are used for sepa-ration or insulation purposes. Especially parts which generate excessive heat are kept away from PCB or any other sensitive parts. Therefore, when replacing parts, be sure to replace them in their original position.

2-1-3. When fixing wires

Wires should be fixed in such a way with cable-tie so they won't move.

When finished servicing, be sure to leave unit in it's original configuration.

2-1-4. Use specified parts only

The safety specification built into the electronics of this unit require that you use specified parts only. Do not use any other replacements. Using other parts can result in electrical and fire hazard.

2-1-5. After servicing is complete

After servicing is complete, check if there are any missing parts or that wires are properly fixed and any place where over heating or shock is likely to occur, can be found.

2-1-6. Handling the optical pick-up

* The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

(1) Place a conductive sheet on the work bench (The black sheet used for wrapping repair parts.)

(2) Place the set on the conductive sheet so that the chassis is grounded to the sheet.

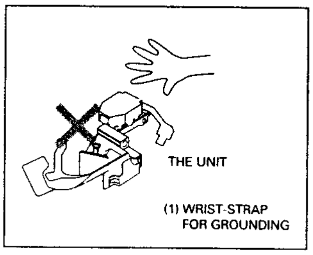
(3) Place your hands on the conductive sheet (This gives them the same ground as the sheet).

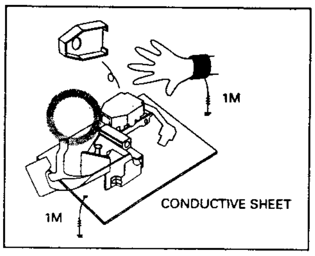
(4) Remove the optical pick up block.

(5) Perform work on top of the conductive sheet. Be careful not to let your clothes or any other static sources to touch the unit.

* Be sure to put on a wrist strap grounded to the sheet.

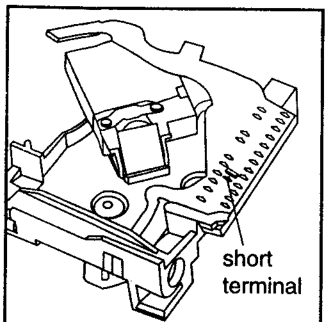
* Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



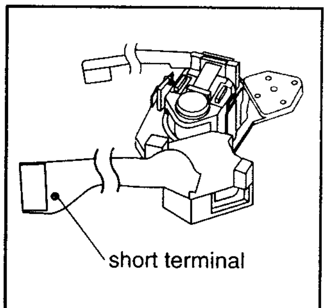


(6) Short the short terminal on the PCB, which is inside the Pick-Up ASS'Y, before replacing the Pick-Up.
(The short terminal is shorted when the Pick-Up Ass'y is being lifted or moved.)

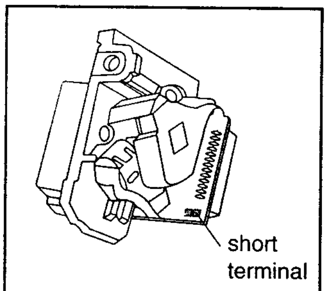
(7) After replacing the Pick-up, open the short terminal on the PCB.



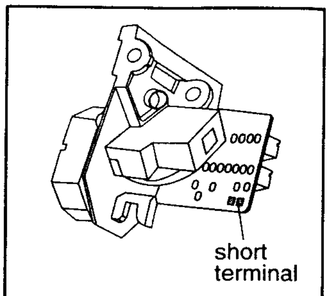
SOH91VI(LDP)



SOH91CI(CAR,walkman)



SOH-A1
(CMS-V10,CMS-V30)



SOH94T4N
(CMS-V10,CMS-V30)

2-2. Servicing Precautions

CAUTION: Before servicing Instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforseen circument create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.
Remember: Safety First.

2-2-1. General Servicing Precautions

(1) a. Always unplug the instrument's AC power cord from the AC power source before (1) removing or reinstalling any component, circuit board, module or any other instrument assembly, (2) disconnecting any instrument electrical plug or other electrical connection, (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead.
Always remove the test instrument ground lead last.

Note: Refer to the Safety Precautions section ground lead last.

(2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

(3) The components used in the unit have a specified flame resistance and dielectric strength. When replacing components, use components which have the same ratings. Components identified by shading, by (*) or by (⚠) in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.

(4) An insulation tube or tape is sometimes used and some components are raised above the printed wiling board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.

(5) After servicing, always check that the removed screws, corponents, and wiring have been installed correctly and that the portion around the serviced part has not been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

2-2-2. Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power ON. Connect the insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (see note) should be more than 1 Megohm.

Note: Accesible conductive parts include metal panels, input terminals, earphone jacks, etc.

2-3. ESD, Precautions

Electrostatically SensitiveDevices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity.
Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

(1) Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic aharge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

(2) After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

(3) Use only a grounded-tip soldering iron to solder or unsolder ESD devices.

(4) Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.

(5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damge ESD devices.

(6) Do not remove a replacement ESD device from its protective package until immediately before your are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).

(7) Immediately before removing the protective materials from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

(8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

3. Chip replacement

3-1. Precaution for the Chip Replacement

(1) Do not touch the part body directly with the soldering iron. ICS, especially TSOP, are easily damaged by heat.
(2) Use care regarding soldering iron tip and avoid rapidly heating parts. Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it.
(3) Use soldering tip temperature of about 240°C or larger parts, use a slightly higher temperature (about 280°C).
(4) The thin (0.3mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases.

The NoteMaster 486S/25N series systems are manufactured using flux which can be cleaned by water in the factory. When your replace the part or troubleshooting, use proper flux and solder which can be cleaned by water. Soldering area will corrode, if proper flux and solder are not used in replace. And it may cause a fatal error to the system.

(5) Use care not to damage the circuit pattern, especially when removing.
(6) Because of the many pins, cleanliness of the pattern is extremely important after removing the IC.
(7) Use care to avoid solder bridges. Remove any that occurs.
(8) Position the part carefully. This will also affect the soldering operation. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier.
(9) Do not reuse removed parts.
(10) Check for solder joints, especially miniature parts with small lead.
(11) A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
(12) It is important to inspect the work with a magnifier. Check after installing (cold solder joints, etc).

3-2. Tools for the Chip Replacement

The tools for the chip replacement are as follows:

(1) Thin tip type soldering iron
(2) Small flat-blade tip type soldering iron
(3) Special desoldering tip iron
(4) Airblower unit
(5) Flat Package Pick-up
(6) Flux can be cleaned by water
(7) 0.3mm thin solder can be cleaned by water
(8) Desoldering wire
(9) Tweezers

3-3. Chip Resistors and Chip Capacitors

3-3-1. Kind jof the Part

The kind of chip resistors and chip capacitors as follows

(1) Thick Film Chip Resistors
(2) Carbon Film Chip Resistors
(3) Metal Film Chip Resistors
(4) Chip Ceramic Capacitors
(5) Chip Trimming Resistors

3-3-2. Removing the Part

The kind of chip resistors and chip capacitors as follows

(1) Using two soldering irons:
① Use thin tip soldering irons.
② Use soldering tip temperature of about 280°C
③ Simultaneously heat both ends of the part.
④ While heating, grasp the part with the tips of the soldering irons and remove it.
⑤ Use desoldering wire to completely remove the old solder from the part location of the board.
⑥ A clean pattern for installing the new part is very important.

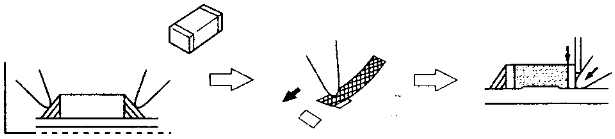


FIG. 4

3-3-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux.
(3) Set part correctly into position, prevent it from shifting.
(4) Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3mm) solder between the tip and part so that it flows into the part contact.
(5) Check work quality with a magnifier.

3-4. Chip Tantalum Capacitors and Chip Filters

3-4-1. Kind of the Part

The kind of chip tantalum capacitors and chip filters are as follows:

(1) Chip Inductors
(2) Chip Tantalum Capacitors
(3) Chip Tantalum Electrolytic Capacitors
(4) Chip Aluminum Electrolytic Capacitors
(5) Chip Transformers
(6) Chip Filters

3-4-2. Removing the Part

(1) Using special desoldering iron:
① Select soldering tip according to part size.
② Bring the tip into contact with the soldered points.
③ When the solder melts, remove the part.
④Remove the old solder with desoldering wire.

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat both ends of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

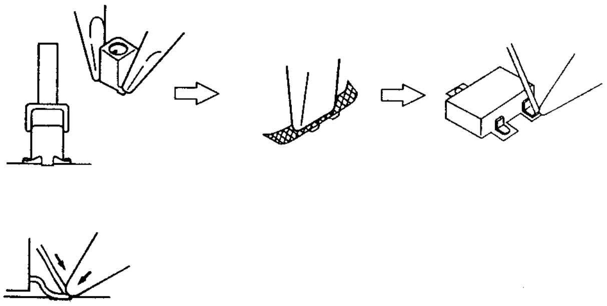


FIG. 5

3-4-3. Installing the Part

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) In part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that if flows into the part contact.
(5) Check work quality with a magnifier.

3-5. Chip VRs, Chip Trimmer Capacitors, Diodes and Tr.

3-5-1. Kind of the Part

The kind of the part is as follows:

(1) Chip VRs
(2) Chip Trimmer Capacitors
(3) Diode
(4) Transistors

3-5-2. Removing the Part

(1) Using two soldering irons:
① Use small flat-blade tips.
② Heat the leads of the part simultaneously.
③ When the solder melts, grasp and remove the part with the soldering iron tips.
④ Remove the old solder with desoldering wire.

3-5-3. Installing the Part

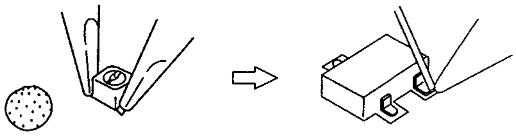


FIG. 6

(1) Clean the area where the new part is to be mounted.
(2) Apply flux
(3) Set part correctly into position, prevent it from shifting.
(4) Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.

3-6. Chip ICs

3-6-1. The kind of the Chip ICs

The kind of the chip ICs are as follows:

(1) SOP (Small Outline Package) IC
(2) SSOP (Shrink Small Outline Package) IC
(3) VSOP (Very Small Outline Package) IC
(4) QFP (Quad Flat Package) IC
(5) VQFP (Very Quad Flat Package) IC
(6) PLCC (Plastic Leaded Chip Carrier) IC
(7) TSOP (Thin Small Outline Package) IC

3-6-2. Removing the Part

(1) Using special desoldering iron:
① Select the tip according to the size and shape of the IC.
② Thin" the tip with a small amount of the IC leads.
③ Set the tip squarely over the IC leads.
④ When the solder melts, carefully twist the iron.
⑤ Raise and remove the IC.

(2) Using shaped airblower unit:
① Select the correct nozzle.
② Select the temperature and airblow (suggested: temperature: 7, airblow: 4)
③ Engage the IC removing tool.
④ Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.

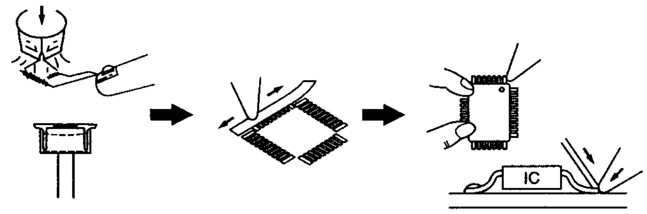


FIG. 7

3-6-3. Installing the Part

(1) Use desoldering wire to remove the previous older.
(2) Clean the location.
(3) Apply flux.
(4) Position the IC and solder two pins at opposite sides.
(5) Use a sharp tipped soldering iron and carefully solder each pin. (After graining experience, a thicke tip can be used for better work efficiency.)
(6) Remove any solder bridges with desoldering wire.
(7) Inspect the work with a magnifier.

2. Specification

2-1. General section

2-1-1. Power source.	230V 50Hz
2-1-2. Power consumption	5W
2-1-3. Dimension	360(W) X 342(D) X 370(H)

2-2. Amp section

2-2-1. Power output	5W (D.T 10%)
2-2-2. Frequency response	30Hz ~ 16kHz(±3 dB)
2-2-3. Signal to noise ratio	70 dB
2-2-4. Separation	50 dB

2-3. Radio section

2-3-1. FM section

(1) Frequency range	87.5MHz ~ 108MHz
(2) Usable sensitivity	6μV
(3)Signal to noise ratio	65 dB
(4) Separation(STEREO)	35 dB

2-3-2. MW section

(1) Frequecny range	522 ~ 1611kHz
(2) Signal to noise ratio	40 dB
(3) Usable sensitivity	600μV

2-3-3. LW section(Option)

(1) Frequency range	146 ~ 290kHz
(2) Signal to noise ratio	35 dB
(3) Usable sensitivity	1000μV

2-4. Cassette deck section

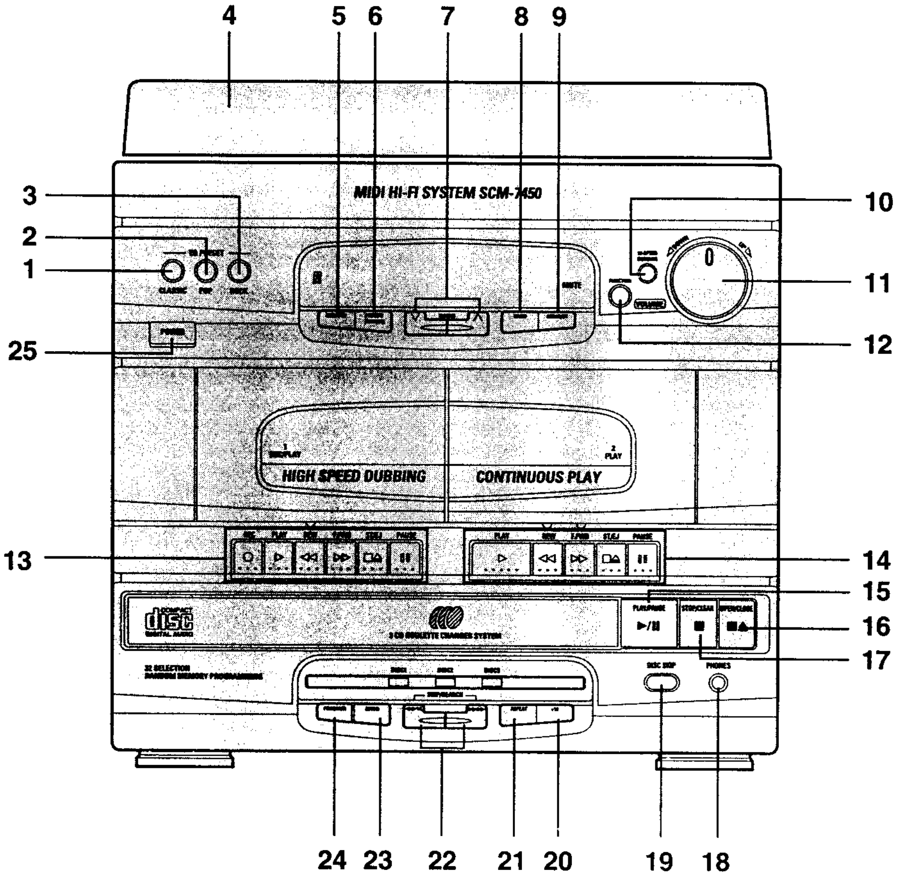
2-4-1. Frequency range	8kHz
2-4-2. Signal to noise ratio	45 dB
2-4-3. Separation(STEREO)	35 dB
2-4-4. Total harmonic distortion	2%(Recording mode)
2-4-5. Erasing effect	65 dB

2-5. Compact disc section

(1) Frequency response	20 Hz ~ 20kHz(±2dB)
(2) Signal to noise ratio	85 dB(1kHz 0 dB)
(3) Channel separation	75 dB(1kHz 0 dB)
(4) Total harmonic distortion	0.1% (1kHz 0 dB)
(5) D/A conversion	16 bit

3. Location of controls

3-1. Front view


4
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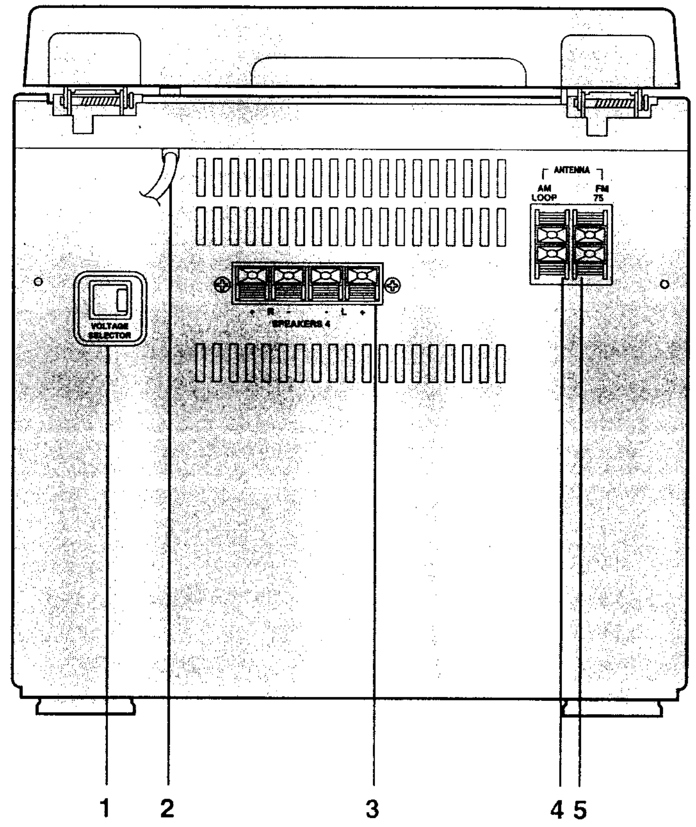
12
MIDI HI-FI SYSTEM SCM-7450
HIGH SPEED DUBBING
CONTINUOUS PLAY
13
14
15
16
17
24
23
22
21
20
19
18

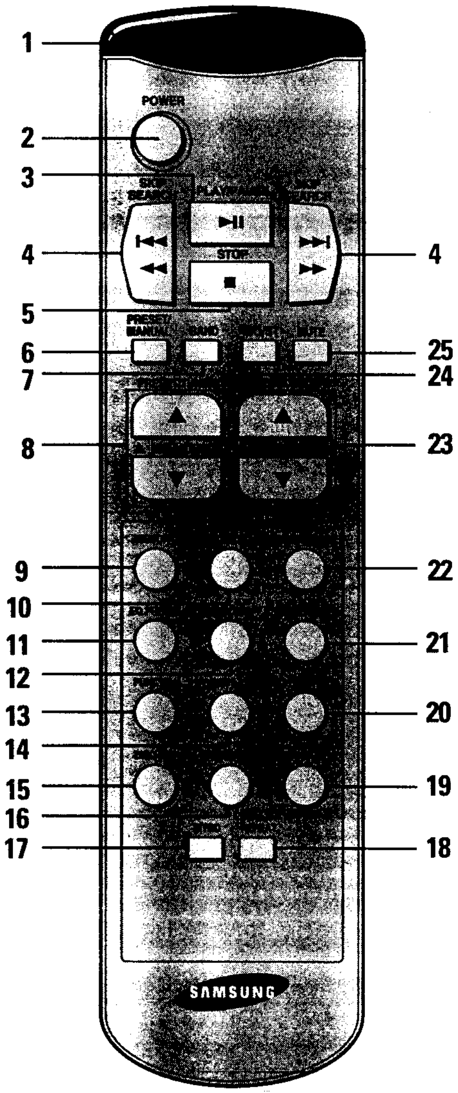
1. ROCK button
2. POP button
3. CLASSIC button
4. DUST COVER
5. MEMORY button
6. PRESET/MANUAL button
7. TUNING buttons
8. BAND button
9. MONO/ST button
10. HI-SPEED button
11. VOLUME KNOB
12. FUNCTION button
13. DECK A
    REC button
    PLAY button
    REW button
    F.FWD button
    ST/EJ button
    PAUSE
14. DECK B
    PLAY button
    REW button
    F.FWD button
    ST/EJ button
    PAUSE button
15. CD DOOR
16. PLAY/PAUSE button
17. OPEN/CLOSE button
18. STOP/CLEAR button
19. PHONES JACK
20. DISC SKIP button
21. +10 button
22. REPEAT button
23. SKIP/SEARCH buttons
24. INTRO button
25. PROGRAM button
26. POWER button

3-2. Rear view


ANTENNA
AM LOOP
FM 75
VOLTAGE SELECTOR
+ R - - L +
SPEAKERS 4
1
2
3
4
5

1. VOLTAGE SELECTOR (OPTION)
2. POWER CORD
3. SPEAKERS terminal
4. AM ANTENNA terminal
5. FM ANTENNA terminal

3-3. Remote control


1
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9
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17
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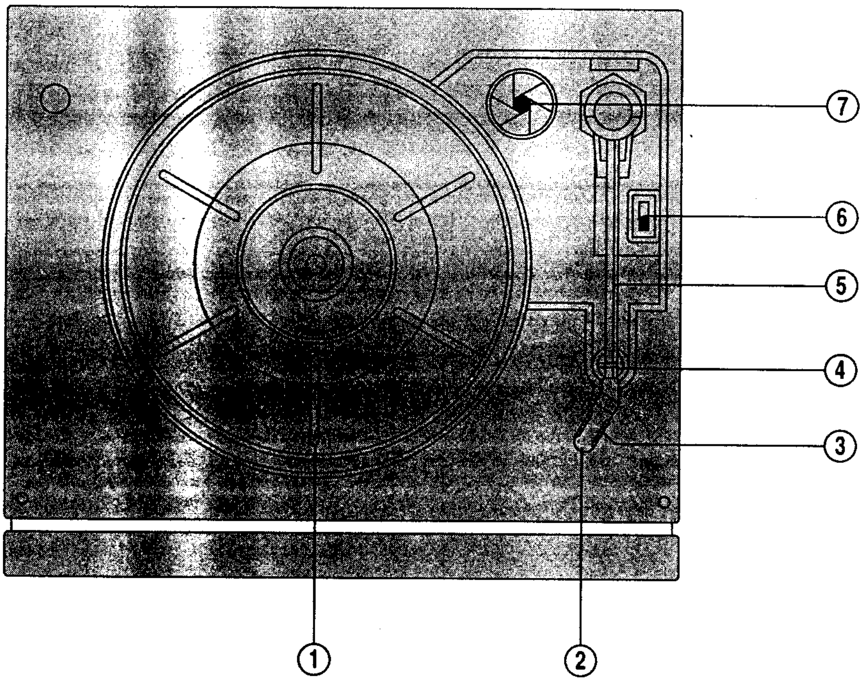
24
23
22
21
20
19
18
POWER
SKIP SEARCH
PLAY/PAUSE
SKIP SEARCH
STOP
PRESET/MANUAL
SAMSUNG

1. INFRARED TRANSMITTER window
2. POWER button
3. PLAY/PAUSE button
4. SKIP/SEARCH buttons
5. STOP button
6. PRESET/MANUAL button
7. BAND button
8. PRESET/TUNING, MIN/HOUR buttons
9. MEMORY button
10. CLOCK button
11. EQ PRESET button
12. TIMER ON/OFF button
13. FUNCTION button
14. DISPLAY button
15. DISC SKIP button
16. PROGRAM button
17. INTRO button
18. REPEAT button
19. RANDOM button
20. +10 button
21. TIMER SET button
22. TIMER CHECK button
23. VOLUME buttons
24. MO/ST button
25. MUTE button

3-4. Turntable information



1. PLATTER

2. STYLUS PROTECTOR

3. HEAD SHELL (STYLUS)

4. ARM REST : The arm rest supports the tone arm.
When you are not playing a record, keep the tone arm on the arm rest.

5. TONE ARM

6. SPEED SELECTOR : Either of two speeds, 33-1/3 rpm or 45 rpm can be selected with this switch.

7. ADAPTER : Put the adapter on the middle of the platter when you play the 45 rpm record.

- If the low frequency noise (howling) is continuously heard on the PHONO mode, turn down the volume a little bit or locate the speaker a little away from the set.

LISTENING TO THE RECORD PLAYER
(1) Push the POWER button to turn the power 'ON'
(2) Set the Function Selector to PHONO.
(3) Raise Dust Cover and place the record on the turntable. A 45 RPM spindle adapter is provided for 45 RPM records.
(4) Select the desired record speed 33-1/3 or 45 RPM, with the SPEED SELECTOR.
(5) Gently place the TONE ARM on the record. The turntable will start automatically.
(6) Adjust the VOLUME, BALANCE and EQ preset buttons as desired.
When the record is finished, the turntable will automatically STOP. Return the TONE ARM to the ARM-REST. Remove the record from the turntable and store the record properly.

4. Disassembly instruction

4-1. Cabinet-Top Cabinet-Front Cabinet-Bottom......................FIG. 1

4-1-1. Release 8 screws 1

4-1-2. Remove cabinet-top (Dir. A)

4-1-3. Release 5 screws 2

4-1-4. Release 2 screws 3

4-1-5. Remove cabinet-bottom (Dir. B)

4-2. Front-PCB, Main-PCB.............FIG. 2

4-2-1. Release 4 screws 1

4-2-2. Remove Main-PCB (Dir. A)

4-2-3. Release 2 screws 2

4-2-4. Remove Knob-volume (Dir. B)

4-2-5. Release 8 screws 3

4-2-6. Remove front-PCB (Dir. C)

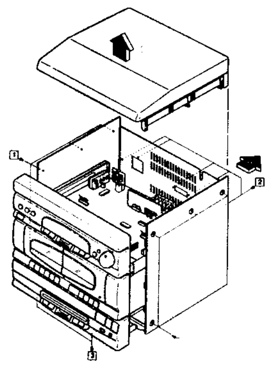


FIG. 1

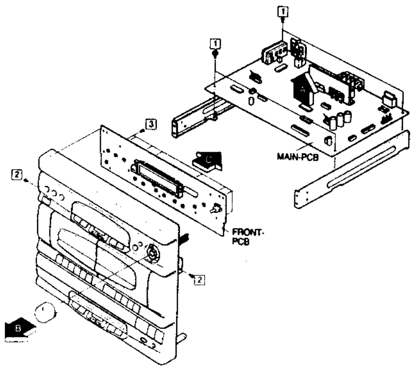


FIG. 2

4-3. Cassette Door, Cassette-Deck, CD-PCB...........FIG. 3

4-3-1. Release 2 screws 1

4-3-2. Release 4 screws 2

4-3-3. Remove CD-Hechanism

4-3-4. Remove Door-CD (Dir. A)

4-3-5. Release 5 screws 3

4-3-6. Release 6 screws 4

4-3-7. Remove Cassette-deek

4-3-8. Remove CD-PCB

4-3-9. Pull out Cassette-Door (Dir. B)

4-3-10. Remove Cassette-Door (Dir. C)

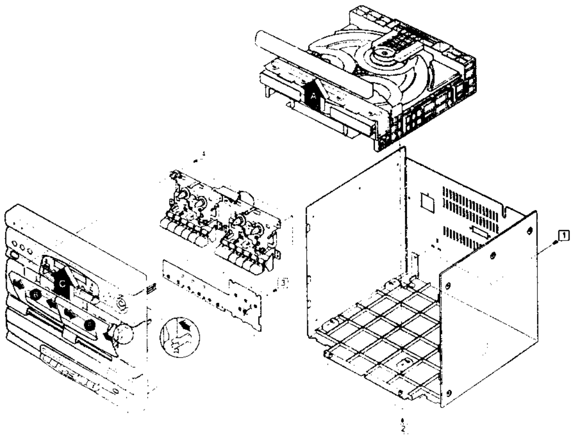


FIG. 3

5. Basic circuit operation

5-1. μ-COM(LC866216-5669) : UIC1

NO.	Port	Name	I / O	Function
1	P52	AMUTE	O	
2	PWM	MUTE LED	O	MUTE LED (MUTE ON : H)
3	P20	CE	O	
4	P21	DATA	O	
5	P22	CLOCK	O	
6	P23	A / B	O	FUNCTION CONTROL
7	P24	DMUTE	O	DECK MUTE CONTROL
8	P25	MOTOR	O	CA DECK MOTOR CONTROL
9	P26	VR DOWN	O	VOLUME DOWN CONTROL
10	P27	VR UP	O	VOLUME UP CONTROL
11	TEST1	NON USE		UN CONNECTION
12	RES	RESET	I	RESET WITH PULL UP
13	XT1	NON USE		+5V CONNECTION
14	XT2	NON USE		UN CONNECTION
15	VSS	GND		DIGITAL GND CONNECTION
16	CF1	OSC IN	I	SYSTEM CLOCK IN 12MHz
17	CF2	OSC OUT	O	SYSTEM CLOCK OUT 12MHz
18	VDD	+5V		
19	P80 / AN0	V LEVEL	I	VOLUME POSITION SENS
20	P81 / AN1	B MOTOR	I	VR UP DOWN SW IN
21	P82 / AN2	A MOTOR / REC	I	DECK LEAF S / W INPUT
22	P83 / AN3	VR UP /DOWN	I	DECK LEAF S / W INPUT
23	P84 / AN4	OPTION1	I	
24	P85 / AN5	OPTION2	I	
25	P86 / AN6	KEY IN1	I	A / D KEY
26	P87 / AN7	KEY IN2	I	A / D KEY
27	P70 / INT0	SCOR	I	
28	P71 / INT1	PO SENS	I	POWER OFF SENS FOR BACK UP
29	P72 / INT2	TRAY SENS	I	FOR QUICK SEARCH
30	P73 / INT3	REMOCON	I	REMOTE CONTROL SIGNAL
31	T0	G1 / CLASSIC	O	CD LED CONTROL
32	T1	G2 / POP	O	CD LED CONTROL
33	T2	G3 / ROCK	O	CD LED CONTROL
34	T3	G4 / DISC1	O	VFD GRID CONTROL
35	T4	G5	O	VFD GRID CONTROL
36	T5	G6	O	VFD GRID CONTROL
37	T6	G7	O	VFD GRID CONTROL
38	T7	G8	O	VFD GRID CONTROL
39	T8	G9	O	VFD GRID CONTROL
40	T9	G10	O	VFD GRID CONTROL
41	T10	G11	O	VFD GRID CONTROL
42	T11	G12	O	VFD GRID CONTROL
43	T12	G13	O	VFD GRID CONTROL
44	T13	G14	O	VFD GRID CONTROL
45	T14	G15	O	VFD GRID CONTROL
46	T15	G16	O	VFD GRID CONTROL
47	VddVpp	+5.6V		
48	Vp	-35V		POWER FOR PULL DOWN
49	S16	S1	O	VFD SEGMENT CONTROL
50	S17	S2	O	VFD SEGMENT CONTROL

NO.	Port	Name	I / O	Function
51	S18	S3	O	VFD SEGMENT CONTROL
52	S19	S4	O	VFD SEGMENT CONTROL
53	S20	S5	O	VFD SEGMENT CONTROL
54	S21	S6	O	VFD SEGMENT CONTROL
55	S22	S7	O	VFD SEGMENT CONTROL
56	S23	S8	O	VFD SEGMENT CONTROL
57	S24	S9	O	VFD SEGMENT CONTROL
58	S25	S10	O	VFD SEGMENT CONTROL
59	S26	S11	O	VFD SEGMENT CONTROL
60	S27	S12	O	VFD SEGMENT CONTROL
61	S28	S13	O	VFD SEGMENT CONTROL
62	S29	S14	O	
63	S30	S15	O	
64	S31	S16	O	
65	P00	DISC2	O	
66	P01	DISC3	O	
67	P02	ROULLET M+	O	ROULLET MOTOR CONTROL
68	P03	ROULLET M-	O	ROULLET MOTOR CONTROL
69	P04	CLOSE M	O	TRAY OPEN CONTROL
70	P05	OPEN M	O	TRAY CLOSE CONTROL
71	P06	CD MUTE	O	
72	P07	XLT	O	CD DSP XLT
73	P10 / SO0	GFS	I	
74	P11 / SO1	SUBQ	I	
75	P12 / SCKO	SQCK	O	
76	P13 / SO3	MDATA	O	CD DSP DATA
77	P14 / SO4	UP / DOWN SW	I	PICK-UP UP/DOWN S/W
78	P15 / SCK1	MCLK	O	CD DSP CLOCK
79	P16 / BUZ	FOK	I	
80	P17 / PWMO	SENS	I	
81	P30	LD ON / XRST	O	
82	P31	CLOSE S / W	I	CD TRAY CLOSE S/W
83	P32	OPEN S / W	I	CD TRAY OPEN S/W
84	P33	UP M	O	PICK-UP UP MOTOR CONTROL
85	P34	DOWN M	O	PICK-UP DOWN MOTOR CONTROL
86	P35	CD B+	O	
87	P36	STEREO	I	STEREO DETECTOR SIGNAL
88	P37	SD	I	TUNED DETECTOR SIGNAL
89	VSS	GND		
90	VDD	+5V		
91	P40	STRQ	O	IF COUNT REQUEST SIGNAL
92	P41	STOUT	I	AUTO SEARCH STOP
93	P42	MO / STEREO	O	
94	P43	EQ1	O	
95	P44	EQ2	O	
96	P45	F1	O	
97	P46	HI - SPEED	O	HI SPEED CONTROL
98	P47	F	O	
99	P50	REC	O	REC CONTROL
100	P51	REC POCNT	O	SYSTEM POWER CONTROL

5-3. CD section

5-3-1. KA9220 (RF + SSP) : WIC01

Pin No.	Name	Description
1	AVEE(R)	Analog negative power supply input pin for RF part.
2	CPH	Capacitor connection pin of mirror hold.
3	CBH	Capacitor connection pin of defect bottom-hold
4	TESTD	Defect test pin
5	TESTM	Mirror test pin
6	TEST1	Input pin for test
7	PFSET	Peak frequency setting pin for focus, tracking compensation and fc (cut off frequency) of CLV LPF
8	SSTOP	Check the position pin of pick-up whether inside or not.
9	DIRC	Direct 1 Track Jump Control Pin
10	AVCC	Analog positive power supply input pin for SERVO part.
11	WDCH	Auto-sequencer clock-input pin(Normal speed = 88.2KHz, Double speed=176.4KHz)
12	SMPD	Connection pin of DSP SMPD
13	SMON	Connection pin of DSP SMON, spindle servo ON at "H"
14	N/C	No connection pin
15	TGSW	Providing time constant to change the high frequency tracking gain
16	RTG	Capacitor connection pin to switch the tracking gain of high frequency
17	LFR	Capacitor connection pin to perform rising low bandwidth of focus servo loop
18	FSW	High frequency gain of focus servo loop can be changed by FS3 switch ON or OFF
19	HFGD	Reducing high frequency gain with capacitor connected between pin 18 and pin 19.
20	FSCH	Time constant external pin to generate focus search waveform
21	VREGI	External regulator voltage input pin for VCO
22	ISET	Determining the peak value of focus search,track jump and SLED kick
23	VREG	3.5V Regulator output pin
24	FVC	Pin connected external resistor to adjust free running frequency of VCO
25	SMEF	Providing an external LPF time constant of CLV SERVO Loop
26	BPF	Providing time constant for Loop filter of VCO
27	MCK	Clock input pin from μ-com
28	MLT	Latch input pin from μ-com
29	MDAT	Data input pin from μ-com
30	RESET	Reset input pin from μ-com, reset at "L"
31	LOCK	Pin for operation of the sled runaway prevention function at "L"
32	TRCNT	Track count output pin
33	ISTAT	Internal status output pin
34	AVEE	Analog negative power supply input pin for SERVO part
35	APDI	Input pin of DSP phase comparison output (PHAS)
36	F8M	Output pin of analog VCO Normal speed = 8.64 MHz, Double speed = 17.28MHz
37	AASC	Auto-Asymmetry control input pin
38	EFMO	EFM Comparator output pin
39	SLEN	Non-inverting input pin of SLED SERVO amplifier
40	SLEO	Output pin of SLED SERVO amplifier
41	SLEI	Inverting input pin of SLED SERVO amplifier
42	TEST2	Test input pin to change speed mode Normal speed="H", Double speed="L"
43	SPDI	Inverting input pin of spindle servo amplifier
44	SPDLO	Spindle servo amplifier output pin
45	FCE	Invering input pin of focus servo complifier.
46	FSE0	Output pin of focus sevoe amplifier
47	TKEI	Non-inverting input pin of tracking servo amplifier
48	TKE0	Output pin of tracking servo amplifier
49	N/C	No connection
50	ATS	Anti-shock input pin

Pin No.	Name	Description
51	TZC	Tracking Zero Crossing input pin
52	TE2	Tracking Error Servo input pin
53	TE1	Output pin of tracking Error Amplifier
54	TDFCT	Capacitor Connection pin for Defect Compensation of tracking servo
55	DVCC	Digital positive power supply input pin for servo part
56	FE2	Focus error servo input pin
57	FE1	Output pin of focus error Amplifier
58	FDFCT	Capacitor connection pin for defect compensation of focus servo
59	FOK	Output pin of Focus ok comparator.
60	LDON	Laser diode ON/OFF control pin
61	EI	Feedback input pin of E I-V amplifier
62	EO	Output pin of E I-V amplifier
63	FBIAS	Bias pin of non-inverting input of focus error amplifier
64	DVEE	Digital negative power supply input pin for servo part
65	RFI	Output Signal of RF summing amplifier is inputed through capacitor
66	RFO	Output pin of RF summing amplifier
67	RF-	Inverting input pin of RF summing amplifier
68	RV	Output pin of (AVCC + AVEE)/2 Voltage
69	CV	Bias input pin of Center Voltage Buffer
70	LD	Output pin of APC amplifier
71	PD	Input pin of APC amplifier
72	AVCC	Analog positive power supply input pin for RF part
73	N/C	No connection
74	PD2	Inverting input pin of RF I-V AMP2
75	PD1	Inverting input pin of RF I-V AMP1
76	F	Inverting input pin of F I-V AMP
77	E	Inverting input pin of E I-V AMP
78	P/N	Selecting P-sub/N-sub of Laser diode
79	DCC2	Defect bottom-hold output is inputed through capacitor
80	DCC1	Output pin of defect bottom-hold

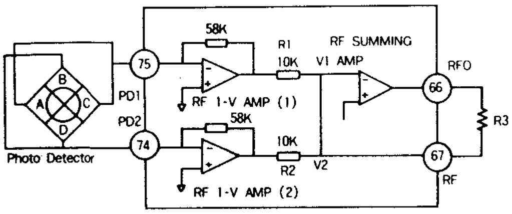
5-3-2. KS9282(DSP): NIC9282

Pin No.	Symbol	I/O	Description
1	AVDD1		Aanlog Vcc 1
2	DPDO	O	Charge pump output for master PLL
3	DPFIN	I	Filter input for master PLL
4	DPFOUT	O	Filter output for master PLL
5	CNTVOL	I	VCO control voltage for master PLL
6	AVSS1		Analog Ground 1
7	DATX	O	Digital audio output
8	XIN	I	X-tal oscillator input
9	XOUT	O	X-tal oscillator output
10	WDCH	O	Word clock of 48 bit / SLOT (Normal speed = 88.2 KHz, Double speed = 176.4KHz)
11	LRCH	O	Channel clock of 48 bit / SLOT (Normal speed = 44.1KHz, Double = 88.2KHz)
12	ADATA	O	Serial audio data output of 48 bit / SLOT (MSB first)
13	DVSS 1		Digital Ground 1
14	BCK	O	Audio data Bit clock for 48 bit / SLOT (Normal speed = 2.1168KHz, Double speed = 4.2336(KHz)
15	C2PO	O	C2 pinter for output audio data
16	VREFL2	I	Input terminal 2 of reference voltage "L" (Floating)
17	VREFL1	I	Input terminal 1 of reference voltage "L" (GND Connection)
18	AVDD2		Analog VCC2
19	RCHOUT	O	Right-Channel audio output through D/A Converter
20	LCHOUT	O	Left-channel audio output through D/A converter
21	AVSS2		Analog Ground 2
22	VREFH 1	I	Input terminal 1 of reference voltage "H" (VDD connection)
23	VREFH 2	I	Input terminal 2 of reference voltage "H" (Floating)
24	EMPH	O	Emphasis / Non - Emphasis Output ("H":Emphasis)
25	LKFS	O	The Lock Status output of frame sync\
26	SOS 1	O	Output of subcode sync signal (S 0 + S 1)
27	RESET	I	System reset at "L"
28	SQEN	I	SQCK I/O Control ("L" : internal CK, "H" : external CK)
29	SQCK	I/O	Clock for output Subcode-Q data
30	SQDT	O	Serial output of Subcode-Q data
31	SQOK	O	The CRC check result signal output of subcode-Q
32	SBCK	I	Clock for output subcode-Q data
33	SDAT	O	Subcode serial data output
34	DVDD 1		Digital Vcc 1
35	MUTE	I	Mute control Input ("H" : Mute ON)
36	MLT	I	Latch Signal Input from Micom
37	MDAT	I	Serial data Input from Micom
38	MCK	I	Serial Clock input from Micom
39	DB 8	I/O	SRAM data I/O Port 8 (MSB)
40	DB 7	I/O	SRAM data I/O Port 7
41	DB 6	I/O	SRAM data I/O Port 6

Pin No.	Symbol	I/O	Description
42	DB 5	I/O	SRAM data I/OPort 5
43	DB 4	I/O	SRAM data I/OPort 4
44	DB 3	I/O	SRAM data I/OPort 3
45	DB 2	I/O	SRAM data I/OPort 2
46	DB 1	I/O	SRAM data I/OPort 1
47	C1F1	I/O	Monitoring output for C1 error correction (RA 1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA 2)
49	C2F1	I/O	Monitoring output for C2 error correction (RA 3)
50	C2F2	I/O	Monitoring output for C2 error correction (RA 4)
51	C2FL	I/O	C2 decoder flag (High : When the processing C2 code is impossible correction state) (RA5)
52	/PBCK	I/O	Output of VCO/2 (Normal speed = 4.3218MHz, Double speed = 8.6436MHZ) (RA
53	DVss2		Digital Ground 2
54	FSDW	I/O	Unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow or underflow for ± 4 frame jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (Normal playback : 4.2336MHz) (RA10)
58	C16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	SEL 1	I	Mode Selection Terminal 1 (H : 33.8688MHz, L : 16.9344MHz)
62	SEL 2	I	Mode Selection Terminal 2 (H : APLL : DPLL)
63	SEL 3	I	Mode Selection Terminal 3 (H : CDROM L : CDP)
64	SEL 4	I	Mode Selection Terminal 4 (L : Internal SRAM)
65	TEST	I	Test Terminal (L = Normal operating state)
66	EFMI	I	EFM Signal input
67	APDO	O	Charge Pump output for analog PLL
68	/ISTAT	O	The internal status output
69	TRCNT	I	Tracking counter input signal
70	LOCK	O	Output signal of LKFS Condition sampled PBFR/16 (If LKFS is "H", Lock is "H". (If the LKFS is sampled "L" at least 8 times by PBFR/16, Lock is "L")
71	PBFR	O	Write frame clock (Lock : 7.35KHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DVDD2		Digital Vcc 2
75	SMPD	O	Spindle Motor drive (Rough control in the CLV-S mode Phase control in the CLV-P mode)
76	SMSD	O	Spindle Motor drive (Velocity control in the CLV-P mode)
77	VCOO1	O	Vco output signal (When the state is lock by means of PBFR, it is 8.643MHz)
78	VCOI1	I	VCO input signal
79	DSPEED	I	Double speed mode control (H : Normal Speed, L : Double Speed)
80	APD02	O	Analog PLLCharge Pump output for Double Speed mode

5-2-3. CD section

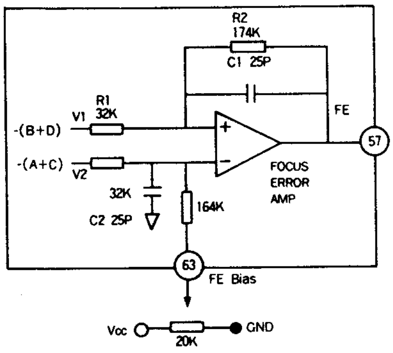
1) RF Amp (KA9220) : WIC01


58K
R1
RF SUMMING
10K
V1 AMP
RFO
75
PD1
PD2
A
B
C
D
Photo Detector
RF I-V AMP (1)
58K
66
R3
74
10K
R2
V2
67
RF
RF I-V AMP (2)

RF I-V Amp (1) and RF I-V Amp (2) are converted to voltage via internal resistance of 58kΩ from the current of PD1 (A+C) and PD2 (B+D); then, this voltage is added to RFsumming amplifier.
The signal (A+B+C+D) is applied to RFO (No.2 terminal).
RF output voltage can be calculated as follows:

$$\begin{aligned} VRF &= -R3 \times (iPD1 + iPD2) \\ &= -R3 \times (V1/R1 + V2/R2) \\ &= -R3 \times (V1/10K + V2/10K) \\ &= -R3/10K \times (V1 + V2) \end{aligned}$$

2) FOCUS ERROR Amp (KA9220) : WIC01


R2
174K
C1 25P
R1
V1 32K
-(B+D)
-(A+C)
V2
32K
C2 25P
164K
FE
57
FOCUS
ERROR
AMP
63
FE Bias
Vcc
20K
GND

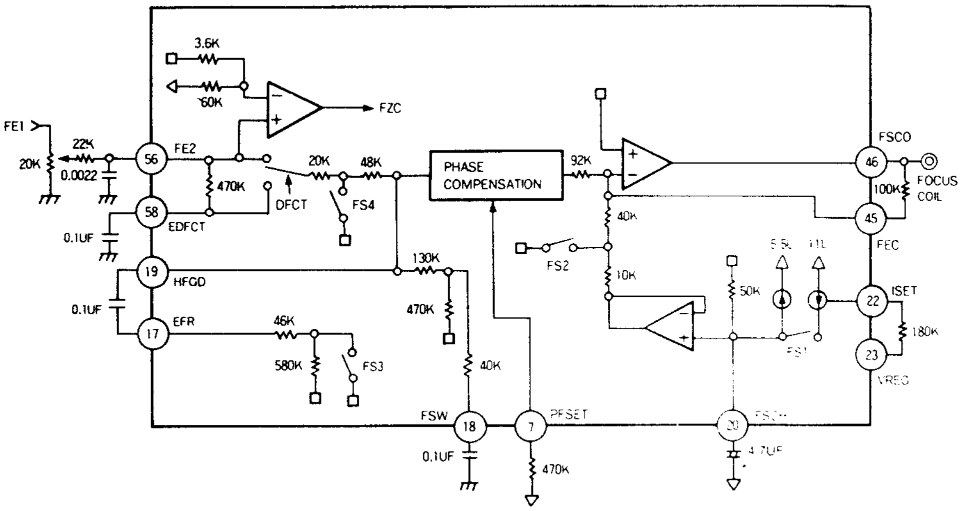
FOCUS ERROR Amp is the circuit which amplifies the difference between RF I-V Amp(1) output (A+C) and RF I-V Amp (2) output (B+D).
These two signals are supplied to (-) and (+) Input terminals of FOCUS ERROR Amp. The FOCUS ERROR signal resulting from this difference voltage is applied to FE (Terminal No. 19).
The FE output voltage of this low frequency component varies depending on {(A+C) - (B+D)}. VFE can be obtained as follows.

$$VFE = (R2/R1) \times (V2 - V1) = 5.4(V2 - V1)$$

This FOCUS ERROR voltage is sent to FOCUS SERVO circuit to maintain optimum focusing.

3) FOCUS SERVO SYSTEM (KA9220) : WIC01

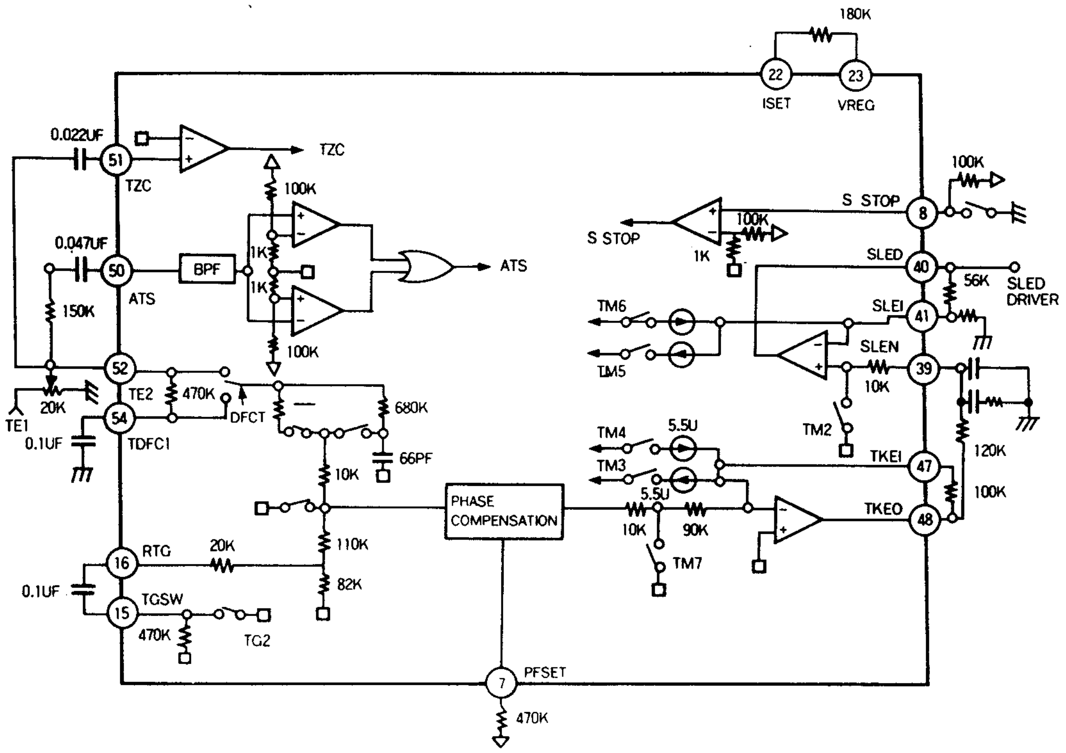
The diagram of Focus Servo System is shown in the following.
When FS3 is ON, high frequency gain decreases in the form of low frequency time constant by pin 2, pin 3, and capacitor connected to internal resistance.
The capacitor between pin 4 and GND has the time constant picking up the low frequency operated in PLAY mode.


3.6K
60K
FZC
FE1
22K
20K
0.0022
56
FE2
20K
48K
470K
DFCT
FS4
PHASE
COMPENSATION
92K
58
EDFCT
0.1UF
19
HFGD
130K
0.1UF
17
EFR
46K
580K
FS3
470K
40K
FSW
18
0.1UF
7
PFSET
470K
FS2
40K
10K
50K
5.5L
11L
FS1
20
FS2+
4.7UF
FSCO
46
100K
FOCUS
COIL
45
FEC
22
ISET
180K
23
VREG

The maximum frequency of focus phase compensation is inversely proportional to the resistance connected to pin 17.
Focus search peak is about 1.1 Vp-p, and is inversely proportional to the resistance connected to pin 29, 31; however, if this resistance changes, the peak of track jump and sled kick changes.
The inversion input of FZC comparator is set to 5.7% of the difference between Vcc and VC(pin 69) (5.7% x (Vcc - VC)).
Note: If the resistance connected to pin 17 changes, the phase compensation peak of focus, tracking, sled servo changes. At the same time, 'op-amp' dynamic range and offset voltage also change.

4) TRACKING SLED SERVO SYSTEM (KA9220) : WIC01

The diagram of Tracking Sled Servo System is shown in the following. The capacitor between pin 8 and 9 has a time constant, and lowers the high frequency when TG2 is off. The maximum frequency of tracking phase compensation is inversely proportional to the resistance connected to pin 17 (about 1.2 KHz at 470K). The tracking jump in the direction of FWD and REV is decided when TM3 and TM4 are ON, and the peak voltage induced from tracking coil is decided by the both TM3 and TM4 current values, and feed back resistance of pin 12.
Track jump max. voltage = TM3 (TM4) current x feedback resistance


180K
(22)
(23)
ISET
VREG
0.022UF
(51)
TZC
TZC
100K
0.047UF
(50)
BPF
1K
1K
ATS
ATS
150K
100K
(52)
TE2
470K
DFCT
680K
20K
TE1
0.1UF
(54)
TDFC1
66PF
10K
PHASE COMPENSATION
110K
RTG
20K
(16)
82K
0.1UF
TGSW
(15)
470K
TG2
(7)
PFSET
470K
100K
S STOP
(8)
S STOP
100K
1K
SLED
(40)
56K
SLED DRIVER
TM6
SLEI
(41)
TM5
SLEN
(39)
10K
TM4
5.5U
TM2
TM3
TKEI
(47)
120K
5.5U
100K
10K
90K
TKEO
(48)
TM7

FWD or REV sled kick is carried out when TM5 or TM6 is ON, and the peak voltage added to sled motor is decided by TM5 or TM 6 current and the feedback resistance of pin 15.
Sled jump max. voltage = TM5 (TM6) current x feedback resistance
Each SW current is decided by the resistance connected to pin 22 and 23.
When the resistance is about 150 kΩ,

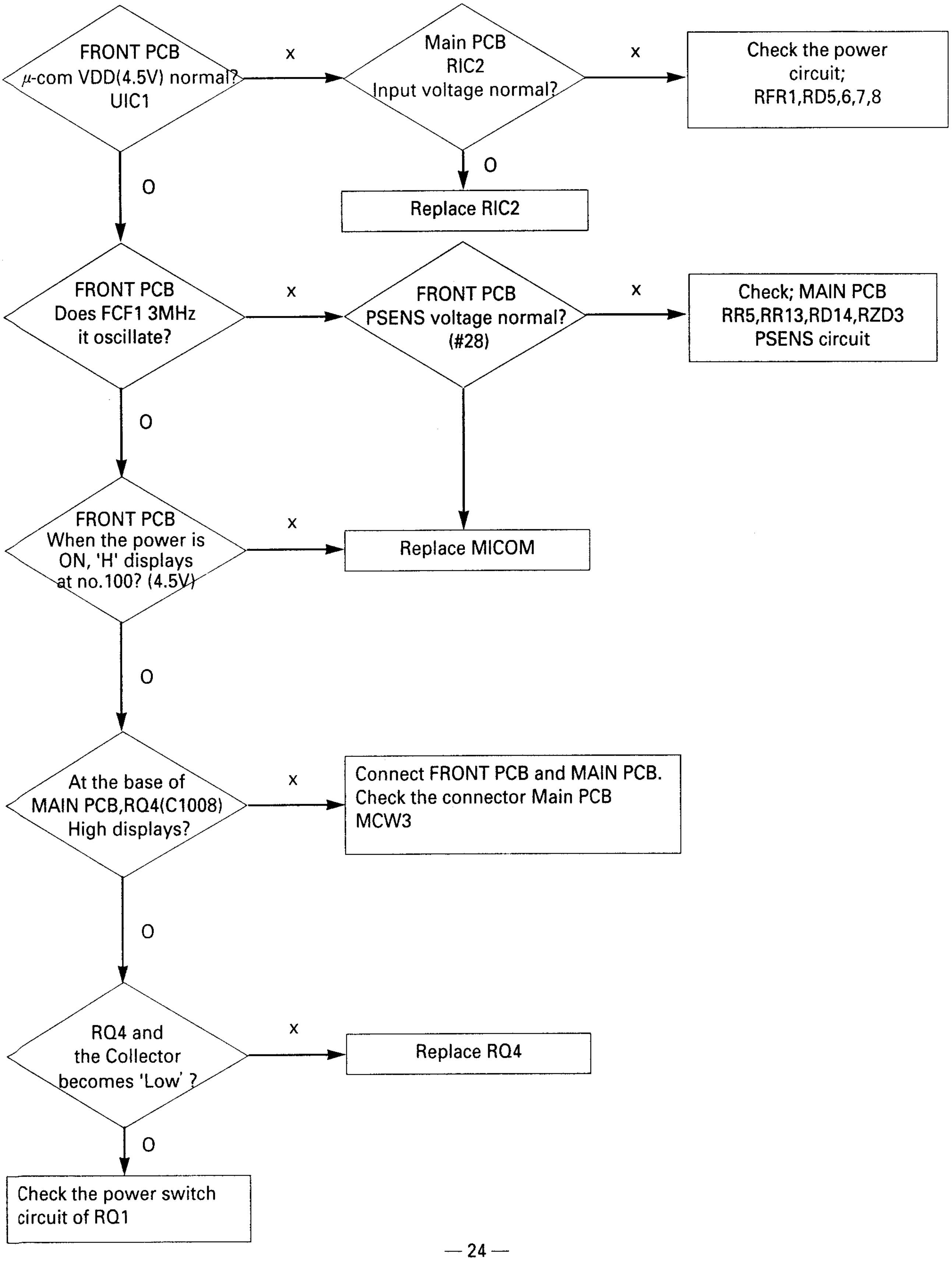
TM3 or TM4 = 11 μA;
TM5 or TM6 = 22 μA.

This current is value is almost inversely proportional to the resistor,variable within a range of about 5 to 40 μA for TM3.
STOP is the ON/OFF detection signal for the limit SW or the sled motor's innermost circumference.

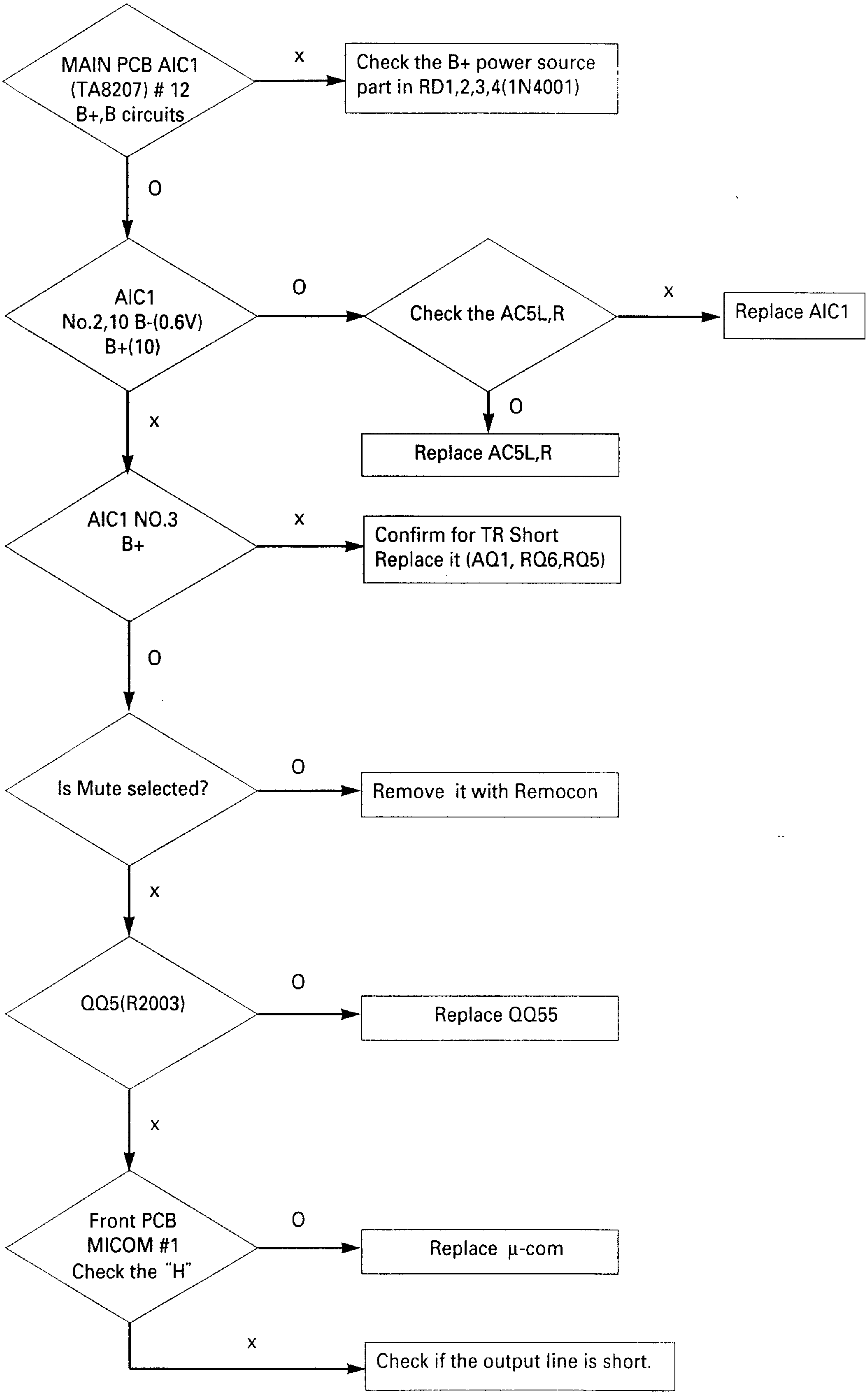
6. Troubleshooting

6-1. The Amplifier section

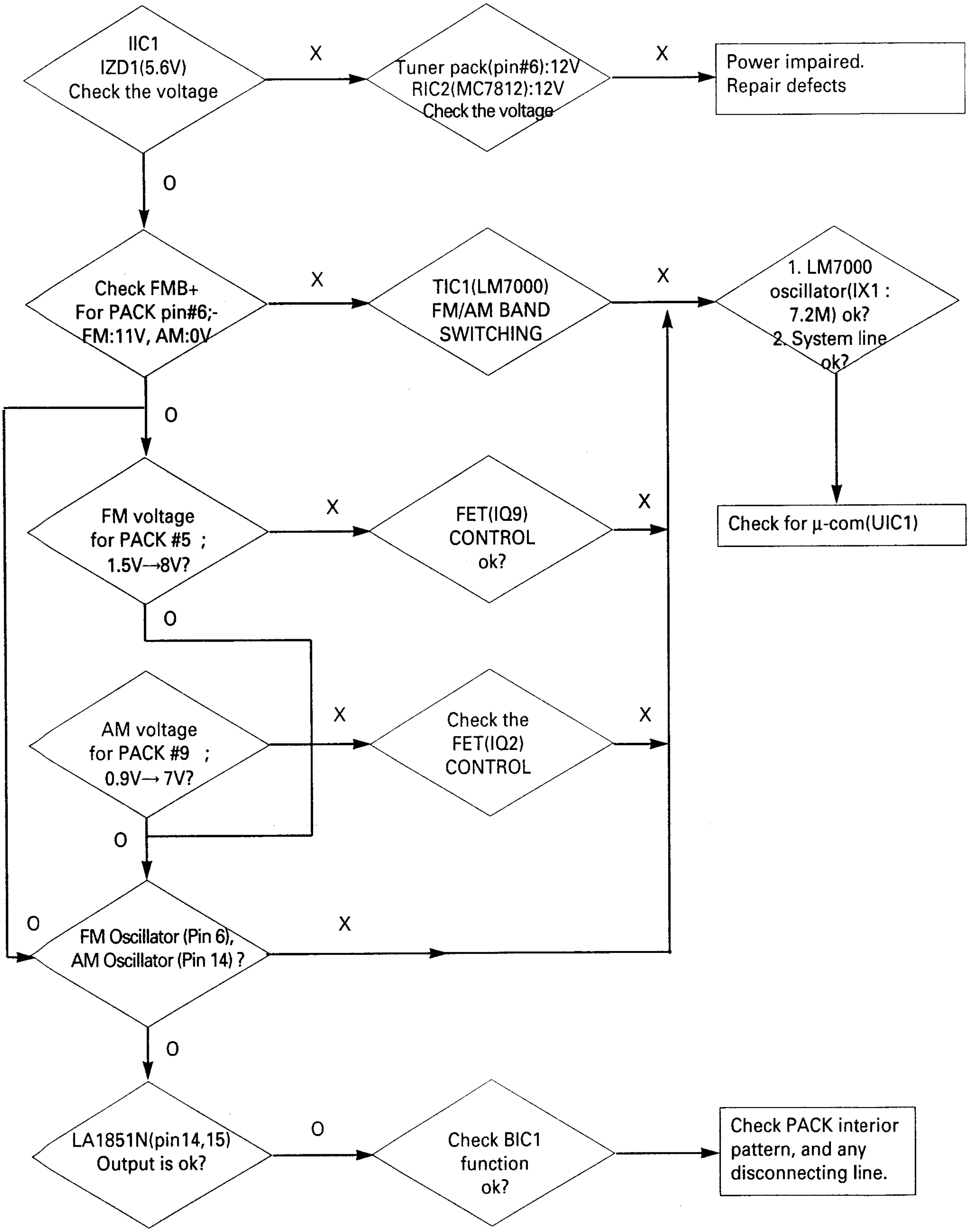
6-1-1. Power malfunction


FRONT PCB
μ-com VDD(4.5V) normal?
UIC1
x
Main PCB
RIC2
Input voltage normal?
x
Check the power circuit;
RFR1,RD5,6,7,8
O
Replace RIC2
O
FRONT PCB
Does FCF1 3MHz it oscillate?
x
FRONT PCB
PSENS voltage normal?
(#28)
x
Check; MAIN PCB
RR5,RR13,RD14,RZD3
PSENS circuit
O
FRONT PCB
When the power is ON, 'H' displays at no.100? (4.5V)
x
Replace MICOM
O
At the base of MAIN PCB,RQ4(C1008)
High displays?
x
Connect FRONT PCB and MAIN PCB.
Check the connector Main PCB
MCW3
O
RQ4 and the Collector becomes 'Low' ?
x
Replace RQ4
O
Check the power switch circuit of RQ1

6-1-2. No output

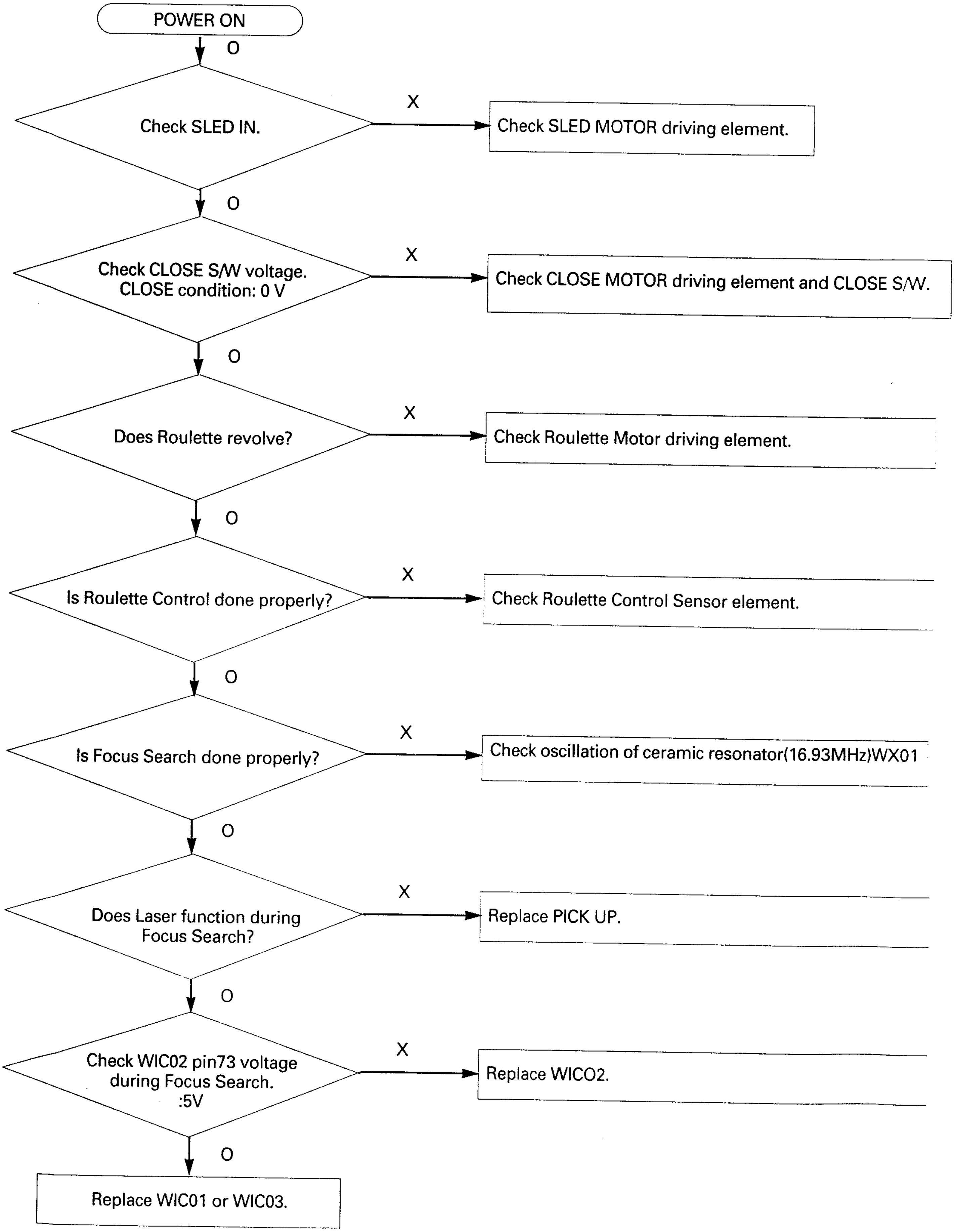

MAIN PCB AIC1
(TA8207) # 12
B+,B circuits
x
Check the B+ power source
part in RD1,2,3,4(1N4001)
O
AIC1
No.2,10 B-(0.6V)
B+(10)
O
Check the AC5L,R
x
Replace AIC1
O
Replace AC5L,R
x
AIC1 NO.3
B+
x
Confirm for TR Short
Replace it (AQ1, RQ6,RQ5)
O
Is Mute selected?
O
Remove it with Remocon
x
QQ5(R2003)
O
Replace QQ55
x
Front PCB
MICOM #1
Check the "H"
O
Replace µ-com
x
Check if the output line is short.

6-1-3. Tuner malfunction(FM/AM)

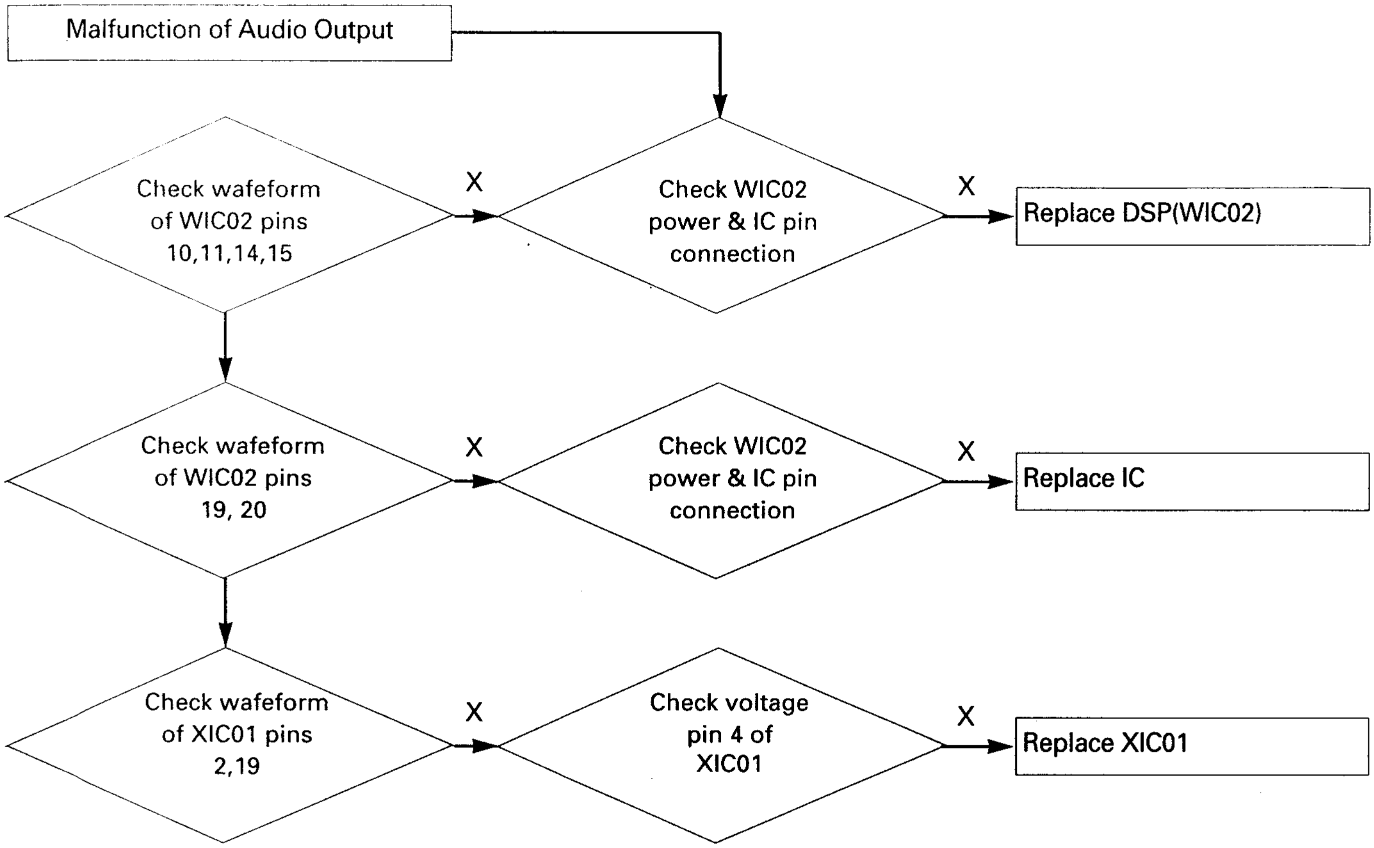

IIC1
IZD1(5.6V)
Check the voltage
X
Tuner pack(pin#6):12V
RIC2(MC7812):12V
Check the voltage
X
Power impaired.
Repair defects
O
Check FMB+
For PACK pin#6;-
FM:11V, AM:0V
X
TIC1(LM7000)
FM/AM BAND
SWITCHING
X
1. LM7000
oscillator(IX1 :
7.2M) ok?
2. System line
ok?
Check for µ-com(UIC1)
O
FM voltage
for PACK #5 ;
1.5V→8V?
X
FET(IQ9)
CONTROL
ok?
X
O
AM voltage
for PACK #9 ;
0.9V→ 7V?
X
Check the
FET(IQ2)
CONTROL
X
O
O
FM Oscillator (Pin 6),
AM Oscillator (Pin 14) ?
X
O
LA1851N(pin14,15)
Output is ok?
O
Check BIC1
function
ok?
Check PACK interior
pattern, and any
disconnecting line.

6-2. CD section

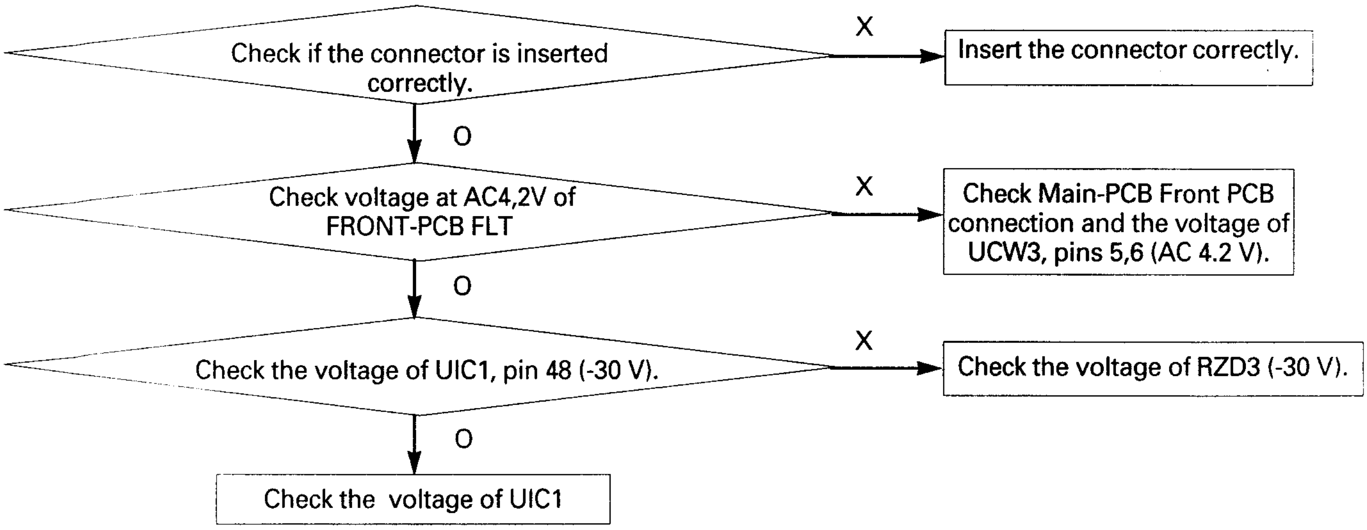
6-2-1.Malfunction of DISC Revolution


POWER ON
O
Check SLED IN.
X
Check SLED MOTOR driving element.
O
Check CLOSE S/W voltage.
CLOSE condition: 0 V
X
Check CLOSE MOTOR driving element and CLOSE S/W.
O
Does Roulette revolve?
X
Check Roulette Motor driving element.
O
Is Roulette Control done properly?
X
Check Roulette Control Sensor element.
O
Is Focus Search done properly?
X
Check oscillation of ceramic resonator(16.93MHz)WX01
O
Does Laser function during
Focus Search?
X
Replace PICK UP.
O
Check WIC02 pin73 voltage
during Focus Search.
:5V
X
Replace WICO2.
O
Replace WIC01 or WIC03.

6-2-2. Malfunction of Audio Output


Malfunction of Audio Output
Check wafeform of WIC02 pins 10,11,14,15
X
Check WIC02 power & IC pin connection
X
Replace DSP(WIC02)
Check wafeform of WIC02 pins 19, 20
X
Check WIC02 power & IC pin connection
X
Replace IC
Check wafeform of XIC01 pins 2,19
X
Check voltage pin 4 of XIC01
X
Replace XIC01

6-2-3. F.L.T. Malfunction


Check if the connector is inserted correctly.
X
Insert the connector correctly.
O
Check voltage at AC4,2V of FRONT-PCB FLT
X
Check Main-PCB Front PCB connection and the voltage of UCW3, pins 5,6 (AC 4.2 V).
O
Check the voltage of UIC1, pin 48 (-30 V).
X
Check the voltage of RZD3 (-30 V).
O
Check the voltage of UIC1

7. Adjustment

Adjustments to this unit have already been made during production procedure.
Therefore, no adjustment is needed. If parts related to the adjustment are replaced, or readjustment is required, proceed with adjustments in the order given below.

7-1. Tuner section

7-1-1. Measuring instruments required

(1) AM standard signal generator (S.S.G) : 400Hz, 30% MOD.
(2) FM standard signal generator : output impedance 75Ω, 1KHz, 40KHz DEV.
(3) Oscilloscope
(4) VTVM
(5) Loop antenna
(6) Dummy load(4Ω)
(7) DC voltmeter
(8) Frequency counter

7-1-2. Importants

(1) Check the power source first.
(2) Check function and band switch.
(3) The equalizer, volume and balance control should be turned to the mid position.

7-1-3. Adjustment procedure

(1) FM Adjustment

Step	Item	Connection	SSG FREQ.	FREQ. SETTING	Adjustment point	Result & Remark
1	IF CENTER & T.H.D adjustment	FIG. 1	98.1MHz	98.1MHz	IIFT1	Maximum output distortion minimum
2	Auto search level adjustment	FIG. 2	98.1MHz	98.1MHz	IVR2	"TUNED" is shown on FLT
3	FM stereo separation adjustment	FIG. 3	98.1MHz	98.1MHz	IVR1	If L-CH is input, R-ch should be minimum and visa-versa.

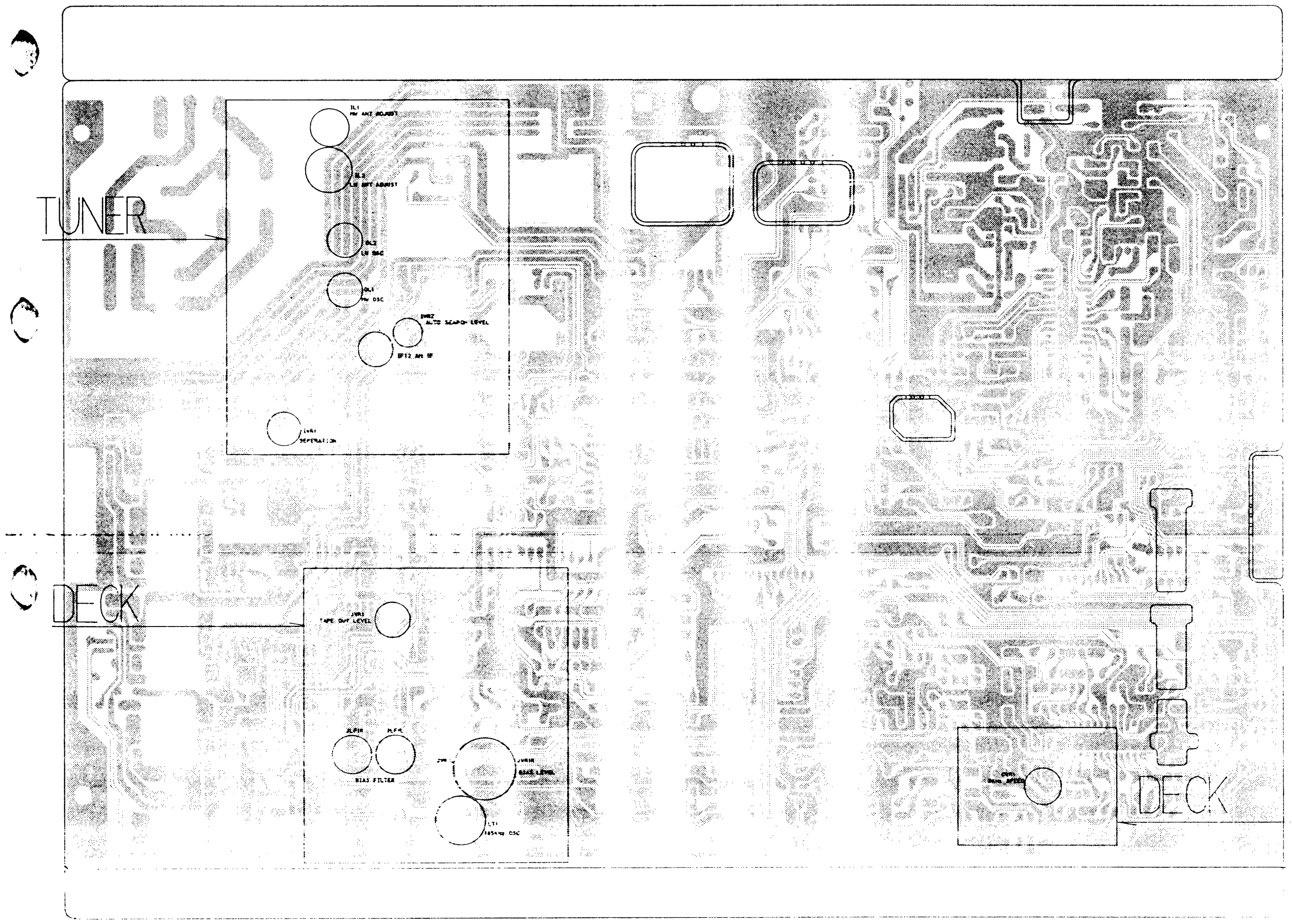
7-2. Cassette deck section

7-2-1. Measuring instruments required

(1) Oscilloscope
(2) VTVM
(3) Tape
  ① MTT-111 (or equivalent) : 3KHz signal is recorded ⟶ tape speed
  ② MTT5521 (or equivalent) : Blank TAPE ⟶ Normal
  ③ MTT-114NA (or equivalent) : 12.5KHz signal is recorded ⟶ Azimuth
  ④ MTT-112BN (or equivalent)
  ⑤ MTT-5521 (or equivalent) : NORMAL

7-2-2. Location of adjustment points (parts side)

MAIN PCB


TUNER
IL1 MW ANT ADJUST
IL2 LW ANT ADJUST
OL2 LW OSC
OL1 MW OSC
IVR2 AUTO SEARCH LEVEL
IFT2 AM IF
IVR1 SEPERATION
DECK
TAPE OUT LEVEL
BIAS FILTER
BIAS LEVEL
LT1
CVR1
DECK

7-2-3. Adjustment procedure

(1) Tape speed

*** Set DOLBY NR switch to off**

Step	Item	Connection	Preparation	Adjustment point	Result & Remark
1	Normal speed adjustment	FIG. 1 Connect line output to frequency counter	Insert MTT-110 to DECK A, B Press PLAY button.	CVR1	3KHz± 1%

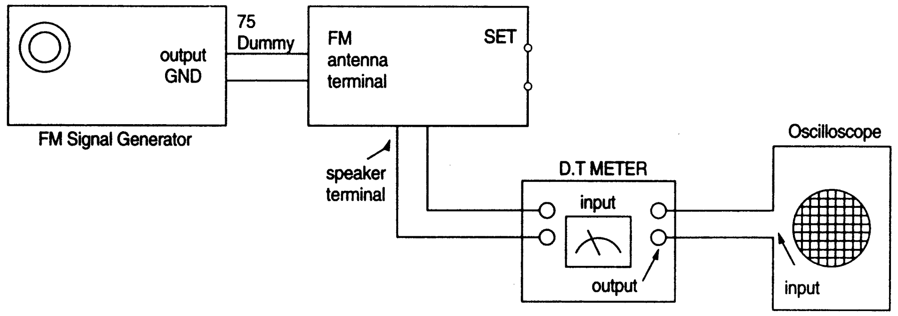

output
GND
75
Dummy
FM
antenna
terminal
SET
FM Signal Generator
speaker
terminal
D.T METER
input
output
Oscilloscope
input

FIG. 1) IF CENTER AND T.H.D

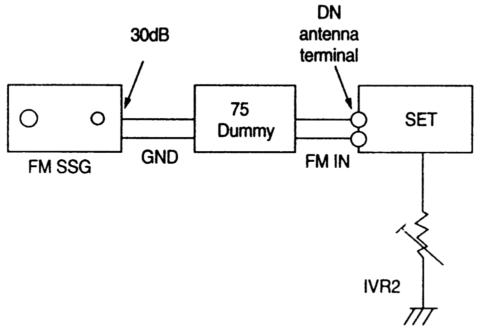

30dB
DN
antenna
terminal
75
Dummy
SET
FM SSG
GND
FM IN
IVR2

FIG. 2) AM AUTO SEARCH LEVEL

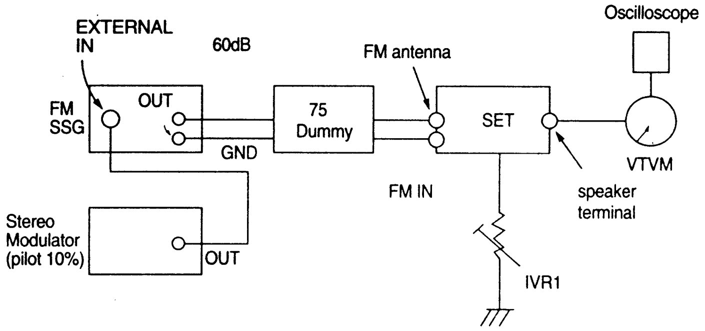

EXTERNAL
IN
60dB
Oscilloscope
FM antenna
FM
SSG
OUT
75
Dummy
SET
GND
VTVM
FM IN
speaker
terminal
Stereo
Modulator
(pilot 10%)
OUT
IVR1

FIG. 3) FM STEREO SEPERATION

(2) AM adjustment

① 2 BAND (FM / AM)

Step	Item	Connection	SSG FREQ.	Frequency setting	Adjustment point	Result & Remark
1	Intermidiate frequency (IF) adjustment	FIG. 4	594KHZ	594KHZ	IIFT2	Maximum output
2	MW frequency coverage adjustment	Connect DC voltmeter to TCW1	—	522KHZ	OL1	0.9V
3			—	1611KHZ	OTC1	9V
4	Repeat step 2 and 3 several times.					
5	AM tracking adjustment	FIG. 4	592KHZ	594KHZ	IL1	Maximum output
6			1404KHZ	1404KHZ	ITC1	
7	Repeat step 5 and 6 several times					

② 3 BAND (FM / MW/LW)

Step	Item	Connection	SSG FREQ.	Frequency setting	Adjustment point	Result & Remark
1	LW frequency coverage adjustment	Connect DC voltmeter to TP1, TG	—	146KHZ	OL2	0.9V
2			—	290KHZ	OTC2	9V
3	Repeat step 1 and 2 several times.					
4	LW tracking adjustment	FIG. 4	160KHZ	160KHZ	IL2	Maximum output
5			270KHZ	270KHZ	ITC2	
6	Repeat step 4 and 5 several times.					

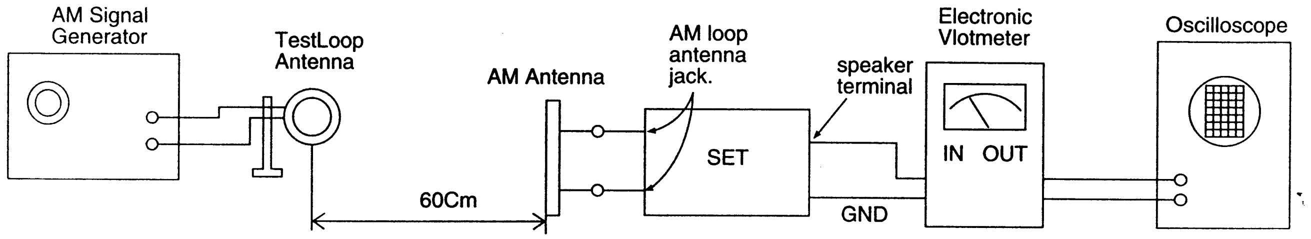

AM Signal Generator
TestLoop Antenna
AM Antenna
AM loop antenna jack.
SET
speaker terminal
GND
Electronic Vlotmeter
IN OUT
Oscilloscope
60Cm

FIG 4) AM LW TRACKING, AM IF ADJUSTMENT

(3) Azimuth adjustment(Deck A, B)

Step	Item	Connection	Preparation	Adjustment point	Result & Remark
1	AZIMUTHH (DECK A, B)	Line output: VTVM and oscilloscope	Play MTT-114NA in the DECK A, B. Press play button (Remove to A(B) DECK door, it adjust CAP-AZI. A(B)	FIG. 3	Maximum output and same phase of K, R-CH. Fix the screw.

(4) Level adjustment

Step	Item	Connection	Preparation	Adjustment point	Result & Remark
1	Playback output level (DECK A)	FIG. 2	Play MTT-112BN in the DECK A.	R-CH : JVR111	L-CH = R-CH

(5) Record and playback adjustment

Step	Item	Connection	Preparation	Adjustment point	Result & Remark
1	Bias oscillation frequency	FIG. 4 TP2	Record MTT-5521 in the DECK B. Press record button	LL1	
2	Bias current	FIG. 4	Record MTT-5521 in the DECK B. Press record button	L-CH : JVR1L R-CH : JVR1R	VTVM : 46mV

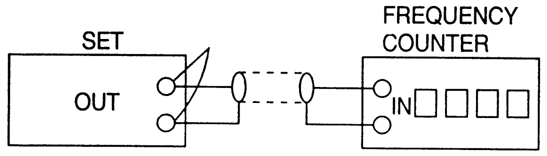

SET
OUT
FREQUENCY COUNTER
IN

FIG. 1)

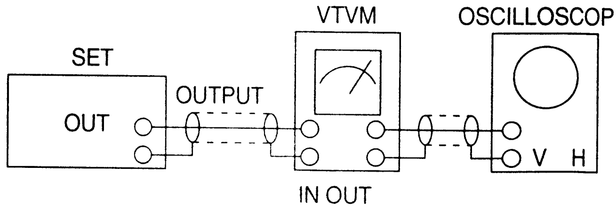

SET
OUT
OUTPUT
VTVM
IN OUT
OSCILLOSCOPE
V H

FIG. 2)

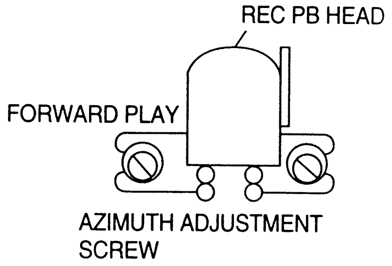
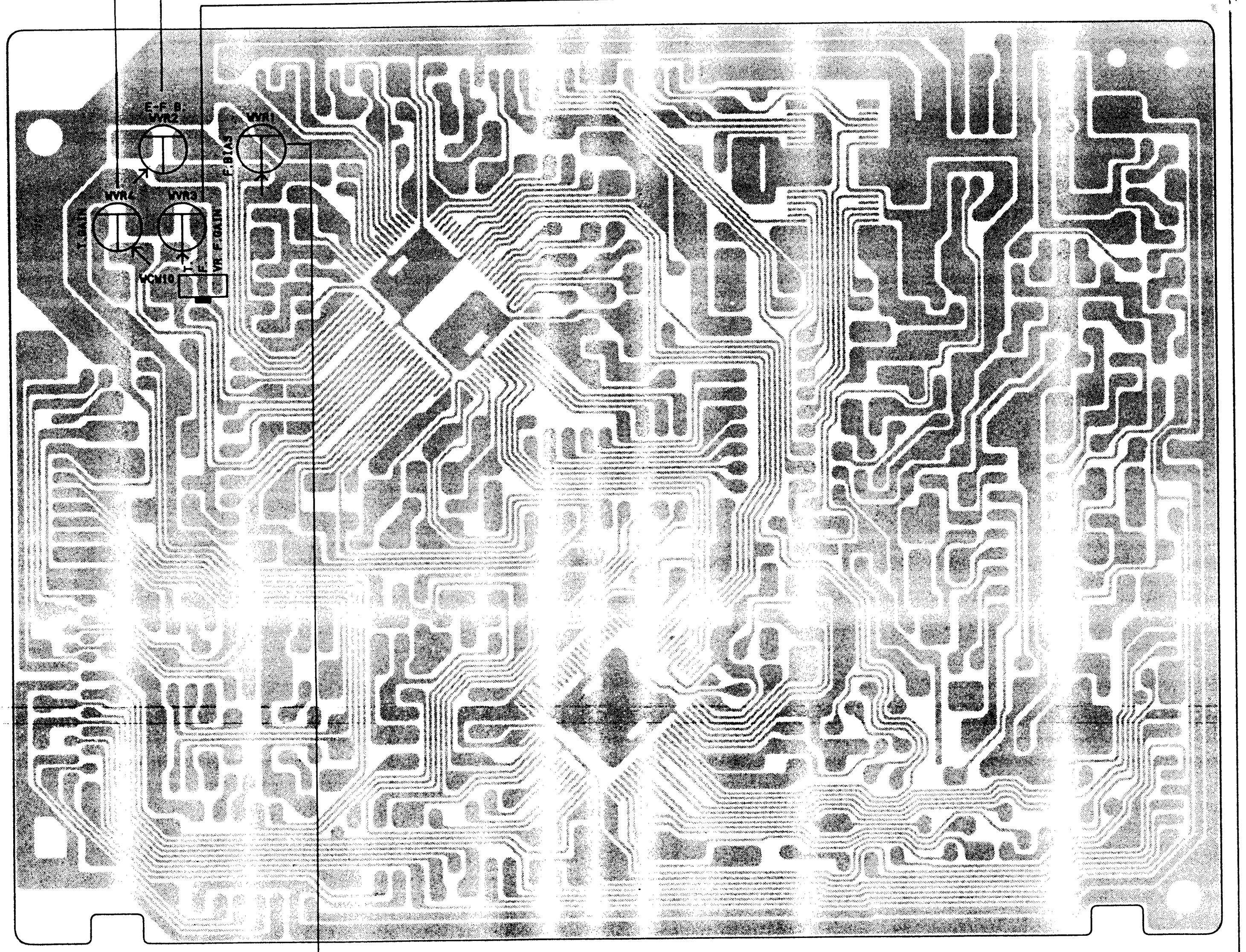

REC PB HEAD
FORWARD PLAY
AZIMUTH ADJUSTMENT SCREW

FIG. 3)

7-3. CD section



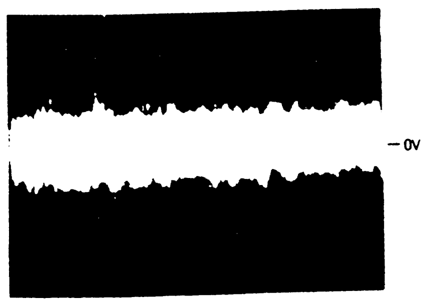
7-3-1. To Adjust FOCUS BIAS (STOP mode)

1) Set Volt/Div of the oscilloscope at DC 100mV.
2) In GND condition of the oscilloscope, set the wave form at 0V, and then set it in the DC range.
3) Connect the GND disconnector of the oscilloscope at VREF of WCW10, and (+) disconnector to FE of WCW10.
4) By using WVR1 set it at 0mV.

7-3-4. To Adjust tracking gain (PLAY mode)

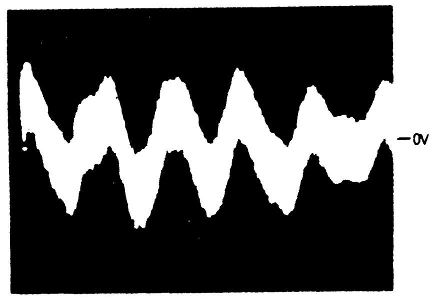
1) Connect;GND disconnector of the oscilloscope to VR of WCW10 and (+)disconnector to T. of WCW10.
2) Load and play the disc.
3) While the disc is running adjust the gain with WVR4 as shown in the following picture.

(Normal freqency)



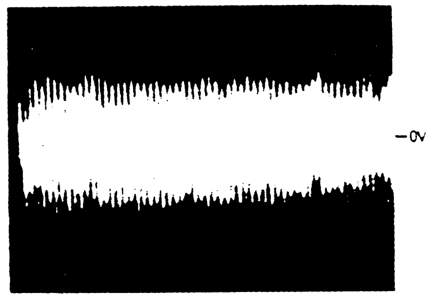
VOLT/DIV: 0.2V
TIME/DIV: 2mS

(Low frequency)



VOLT/DIV: 0.2V
TIME/DIV: 2mS

(High frequency)

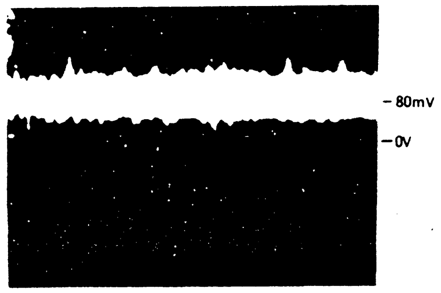


VOLT/DIV:0.2V
TIME/DIV:2mS

7-3-3. To Adjust Focus Gain (PLAY mode)

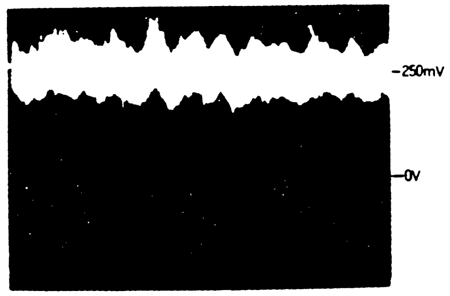
1) Connect;GND disconnector of the oscilloscope to VR of WCW10 and (+)disconnector to F, of WCW10.
2) Load and play the disc.
3) While the disc is running adjust the gain with WVR3 as shown in the following picture.

(Normal freqency)



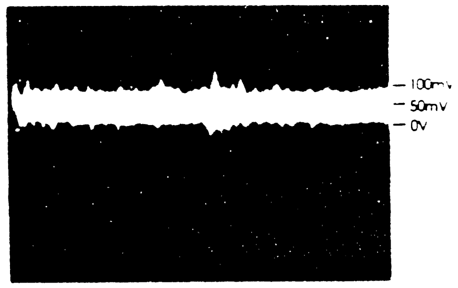
VOLT/DIV: 0V
TIME/DIV: 2mS

(Low frequency)



VOLT/DIV: 0.1V
TIME/DIV: 2mS

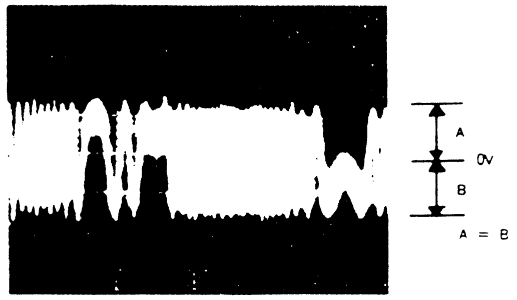
(High frequency)



VOLT/DIV:0.1V
TIME/DIV:2mS

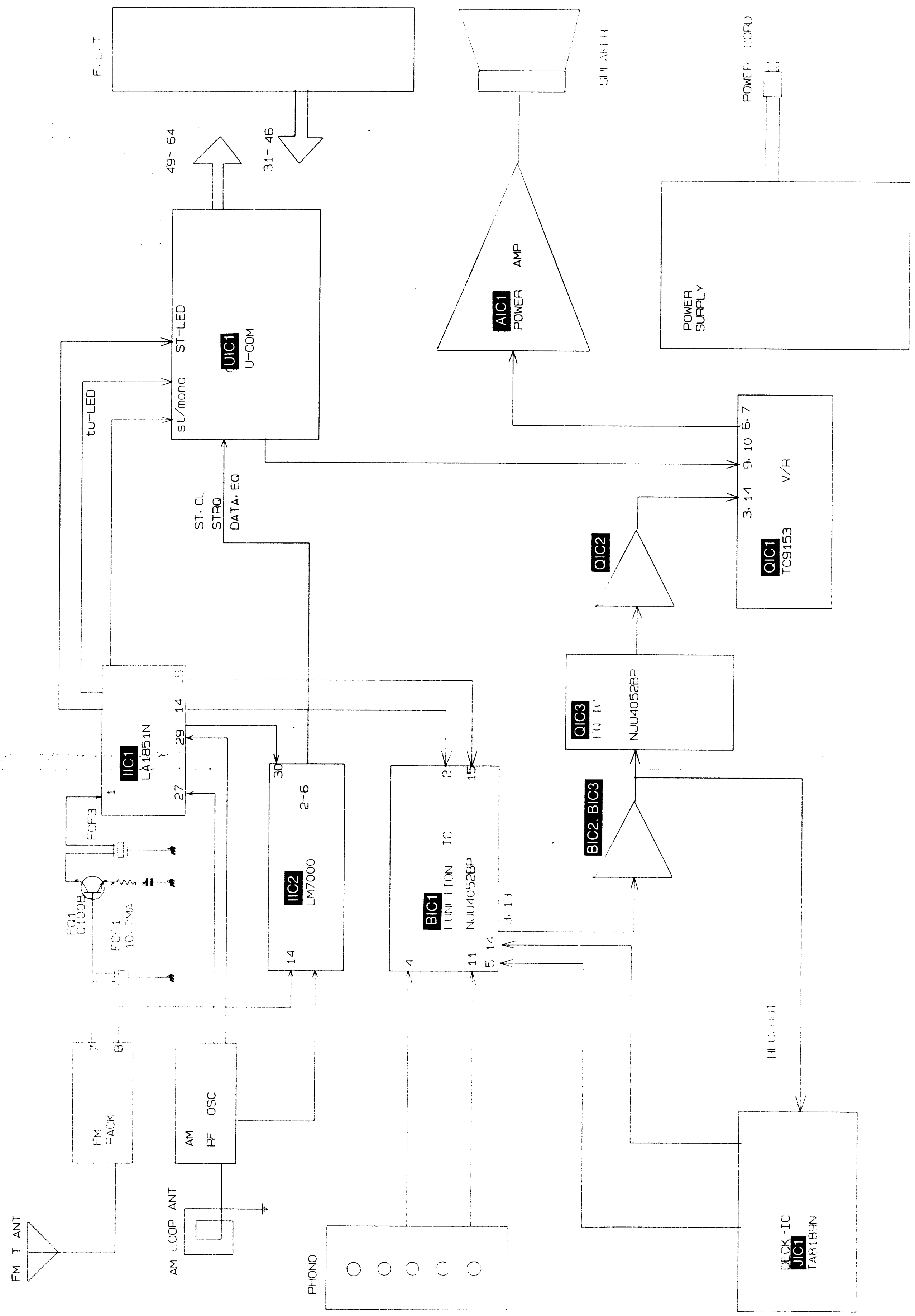
7-3-2. To Adjust E/F Balance (PLAY mode)

1) Set TIME/DIV of the oscilloscope at 2mS.
2) Set Volt/DIV of the oscilloscope at 0.5V.
3) At GND setting of the oscilloscope set the wave form at 0v and then set it in the DC range.
4) Connect;GND disconnector of the oscilloscope to VREF of WCW10 and (+)disconnector to T. of WCW10.
5) Load and play the disc.
6) Turn WVR4 counter clockwise to the minimum value.
7) Raise WVR2 and adjust the wave form so that the middle of wave comes to the GND of the oscilloscope or until the upper half of wave form becomes symmetrical to the buttom half. (A=B)
8) Adjust WVR4 in the arrow direction to achieve a normal sound effect.

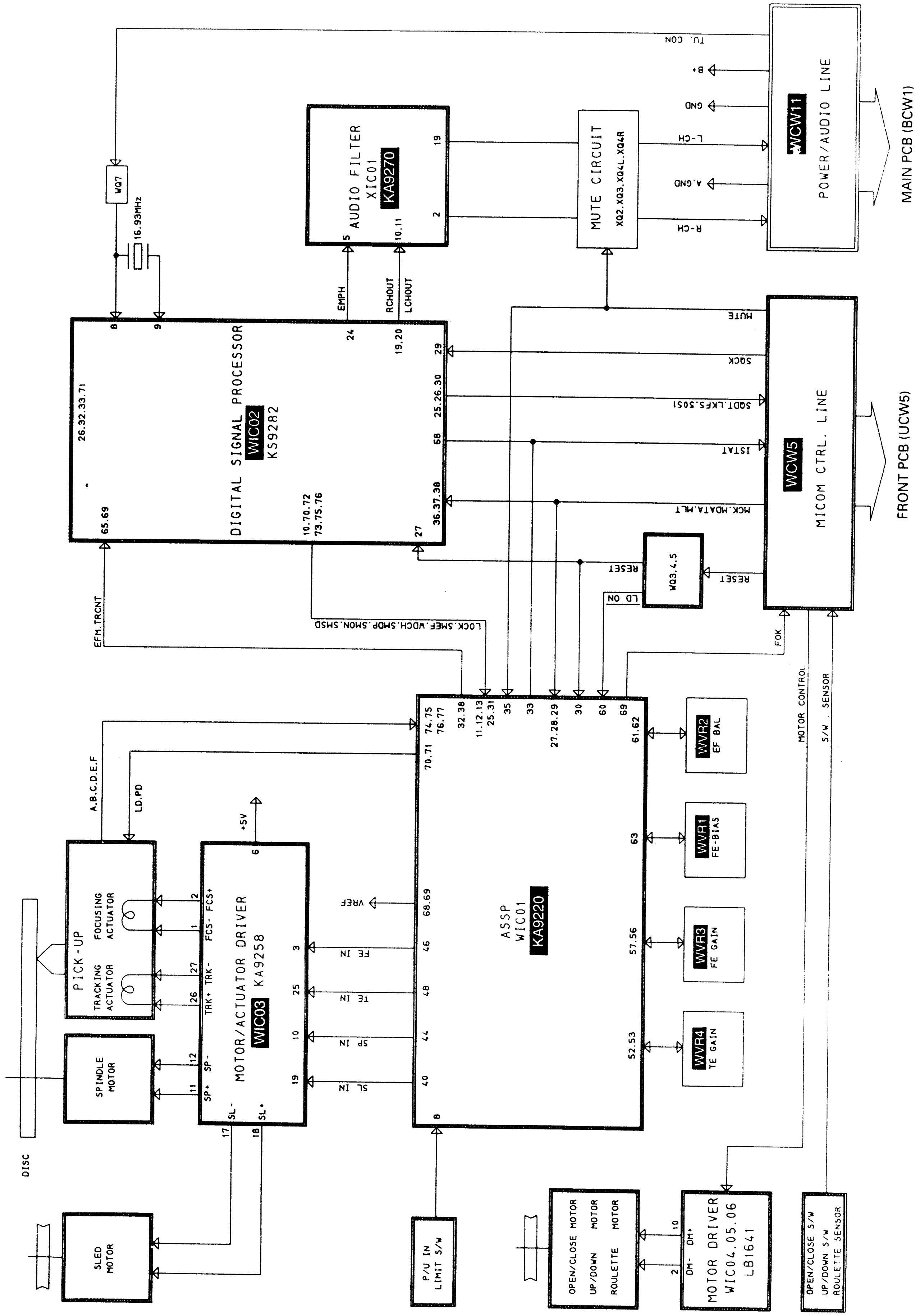


8. Block diagram

8-1. Main section


F.L.T
SPEAKER
POWER CORD
49- 64
31- 46
ST-LED
st/mono
UIC1
U-COM
AIC1
POWER
AMP
POWER
SUPPLY
tu-LED
ST.CL
STRQ
DATA.EQ
6.7
9.10
3.14
V/R
QIC1
TC9153
QIC2
QIC3
EQ IC
NJU4052BP
BIC2, BIC3
IIC1
LA1851N
14
29
27
1
30
2~6
IIC2
LM7000
14
BIC1
FUNCTION IC
NJU4052BP
2
15
3.13
4
11
5
14
FCF3
FQ1
C1008
FCF1
10.7MA
FM
PACK
AM
RF
OSC
FM T ANT
AM LOOP ANT
PHONO
DECK-IC
JIC1
TA8184N
HEAD

8-2. CD section


TU.CON
B+
GND
L-CH
A.GND
R-CH
WCW11
POWER/AUDIO LINE
MAIN PCB (BCW1)
AUDIO FILTER
XIC01
KA9270
19
2
5
10.11
MUTE CIRCUIT
XQ2.XQ3.XQ4L.XQ4R
WQ7
16.93MHz
8
9
EMPH
RCHOUT
LCHOUT
24
19.20
29
25.26.30
68
36.37.38
27
26.32.33.71
65.69
10.70.72
73.75.76
DIGITAL SIGNAL PROCESSOR
WIC02
KS9282
MUTE
SQCK
SQDT.LKFS.SOS1
ISTAT
MCK.MDATA.MLT
RESET
WQ3.4.5
LD ON
RESET
WCW5
MICOM CTRL. LINE
FRONT PCB (UCW5)
LOCK.SMEF.WDCH.SMDP.SMON.SMSD
EFM.TRCNT
FOK
MOTOR CONTROL
S/W , SENSOR
A.B.C.D.E.F
LD.PD
+5V
6
PICK-UP
FOCUSING ACTUATOR
TRACKING ACTUATOR
2
1
27
26
FCS- FCS+
TRK+ TRK-
MOTOR/ACTUATOR DRIVER
WIC03
KA9258
VREF
FE IN
TE IN
SP IN
SL IN
3
25
10
19
12
11
SP+ SP-
SL-
SL+
17
18
SPINDLE MOTOR
DISC
SLED MOTOR
ASSP
WIC01
KA9220
70.71
74.75
76.77
32.38
11.12.13
25.31
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27.28.29
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61.62
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57.56
52.53
68.69
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48
44
40
8
WVR2
EF BAL
WVR1
FE-BIAS
WVR3
FE GAIN
WVR4
TE GAIN
P/U IN
LIMIT S/W
OPEN/CLOSE MOTOR
UP/DOWN MOTOR
ROULETTE MOTOR
MOTOR DRIVER
WIC04.05.06
LB1641
DM- DM+
10
2
OPEN/CLOSE S/W
UP/DOWN S/W
ROULETTE SENSOR

9. Exploded view & parts list

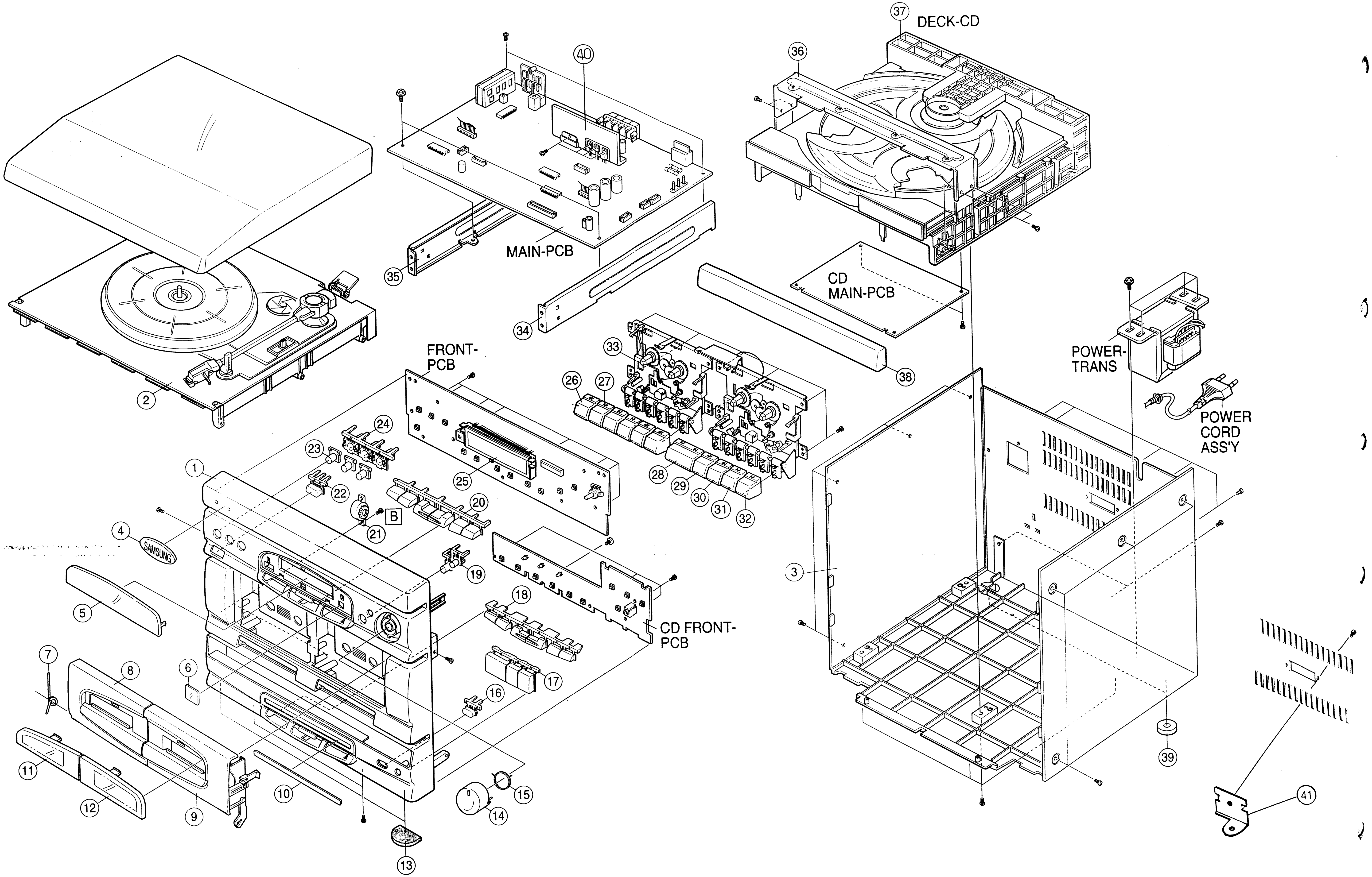
9-1. Main section

9-1-1. Parts list

● Exclusive part

No.	Code no.	Description	Specification	Q'TY	REMARK
1	12000-0209-01	CABINET-FRONT	SCM7450/EXP-B T2.5 BLK MIPS 94HB	1	●
2	19279-0001-00	ASS'Y T/TABLE	SCM-7450	1	
3	12001-0211-00	CABINET-BOTTOM	SCM-7450 T3 BLK MIPS 94HB	1	
4	A0120-0300	BADGE-BRAND	L33 20 D2XD1.5 L5XL0.9 W0.9 H0.4 AL105	1	●
5	14073-0210-01	WINDOW-TUNER	SCM-7450 T3 BRN ACRYL	1	
6	14154-0002-00	MASK-LED	SCM-7450 BLK T0.5 PC	1	
7	16674-568-910	SPRING-DOOR	SUS PI0.9	2	●
8	14042-0107-01	DOOR-CASS(A)	SCM7450/EXP-B T2.5 BLK ABS 94HB	1	●
9	14042-0108-01	DOOR-CASS(B)	SCM-7450/EXP-B ABS 94HB T2.5 BLK	1	●
10	14014-0024-00	INLAY-CD	SCM-7450 T0.5 BLK PC	1	
11	14073-0211-00	WINDOW-DOOR(A)	SCM-7450 T0.5 BRN PMMA	1	●
12	14073-0212-00	WINDOW-DOOR(B)	SCM-7450 T0.5 BRN PMMA	1	●
13	16174-504-210	CUSHION-FOOT	RUBBER SPONGE	2	
14	14083-0532-00	KNOB-VOLUME	SCM-7450 BLK T1.5 ABS 94HB	1	
15	12724-0028-00	SPRING-VOLUME	CS PWR PI0.7 SCM7850	1	
16	14084-0539-00	KNOB-DISC	SCM-7450 BLK T1.5 ABS 94HB	1	
17	14083-0537-01	KNOB-PLAY(CD)	SCM-7450 BLK T1.5 ABS 94HB	1	
18	14083-0538-01	KNOB-SKIP	SCM-7450 BLK T1.5 ABS 94HB	1	
19	14083-0536-00	KNOB-FUNCTION	SCM-7450 BLK T1.5 ABS 94HB	1	
20	14083-0535-01	KNOB-TUNING	SCM-7450 BLK T1.5 ABS 94HB	1	
21	15214-506-011	DAMPER-ASS'Y	POM PD790	2	●
22	14084-0533-01	KNOB-POWER	SCM-7450/EXP-B T1.5 BLK ABS 94HB	1	
23	12714-0052-00	LENS-EQ	SCM7450 T5 WHT	3	
24	14083-0534-00	KNOB-EQ	SCM-7450 BLK T1.5 ABS 94HB	1	
25	13322-0146-00	HOLDER-FLT	SCM-7450 T2 BLK ABS 94HB	1	
26	14083-0541-00	KNOB-DECK(REC)	SCM-7450 BLK T1.5 ABS 94HB	1	
27	14083-0542-00	KNOB-PLAY(S)	SCM-7450 BLK T1.5 ABS 94HB	1	
28	14083-0540-00	KNOB-DECK(L)	SCM-7450 BLK T1.5 ABS 94HB	1	
29	14083-0544-00	KNOB-DECK(REW)	SCM-7450 BLK T1.5 ABS 94HB	2	
30	14083-0543-00	KNOB-DECK(F/F)	SCM-7450 BLK T1.5 ABS 94HB	2	
31	14083-0546-00	KNOB-DECK(S/EJ)	SCM-7450 BLK T1.5 ABS 94HB	2	
32	14083-0545-00	KNOB-DECK(PAUSE)	SCM-7450 BLK T1.5 ABS 94HB	2	
33	17159-0045-00	DECK-CASSETTE	ADR2006FW SCM7800	1	
34	13012-0216-00	BRACKET-FRAME(R)	SCM7450 T1.0 SECC	1	
35	13012-0215-00	BRACKET-FRAME(L)	SCM7450 T1.0 SECC	1	
36	13013-0211-00	BRACKET-FRAME	CMS-CR3 T1.2 NTR SECC	1	
37	* CMS-CR3	DECK-CD R/C	CMS-CR3	1	
38	14043-0109-01	DOOR-CD	SCM7450/EXP-B T2 BLK ABS 94HB	1	
39	16804-521-710	FOOT-CONTACT	EVA RUBBER	2	
40	11123-0045-00	HEAT-SINK	SCM-7450 WHT T3 AL	1	
41	13014-0264-00	BRACKET-PCB	SCM-7450 SECC T1.0	1	

9-1-2. Exploded view


37
DECK-CD
36
40
MAIN-PCB
35
34
CD
MAIN-PCB
38
POWER-
TRANS
POWER
CORD
ASS'Y
2
FRONT-
PCB
33
26
27
24
23
1
22
25
20
28
29
30
31
32
21
B
4
SAMSUNG
19
3
5
18
CD FRONT-
PCB
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41

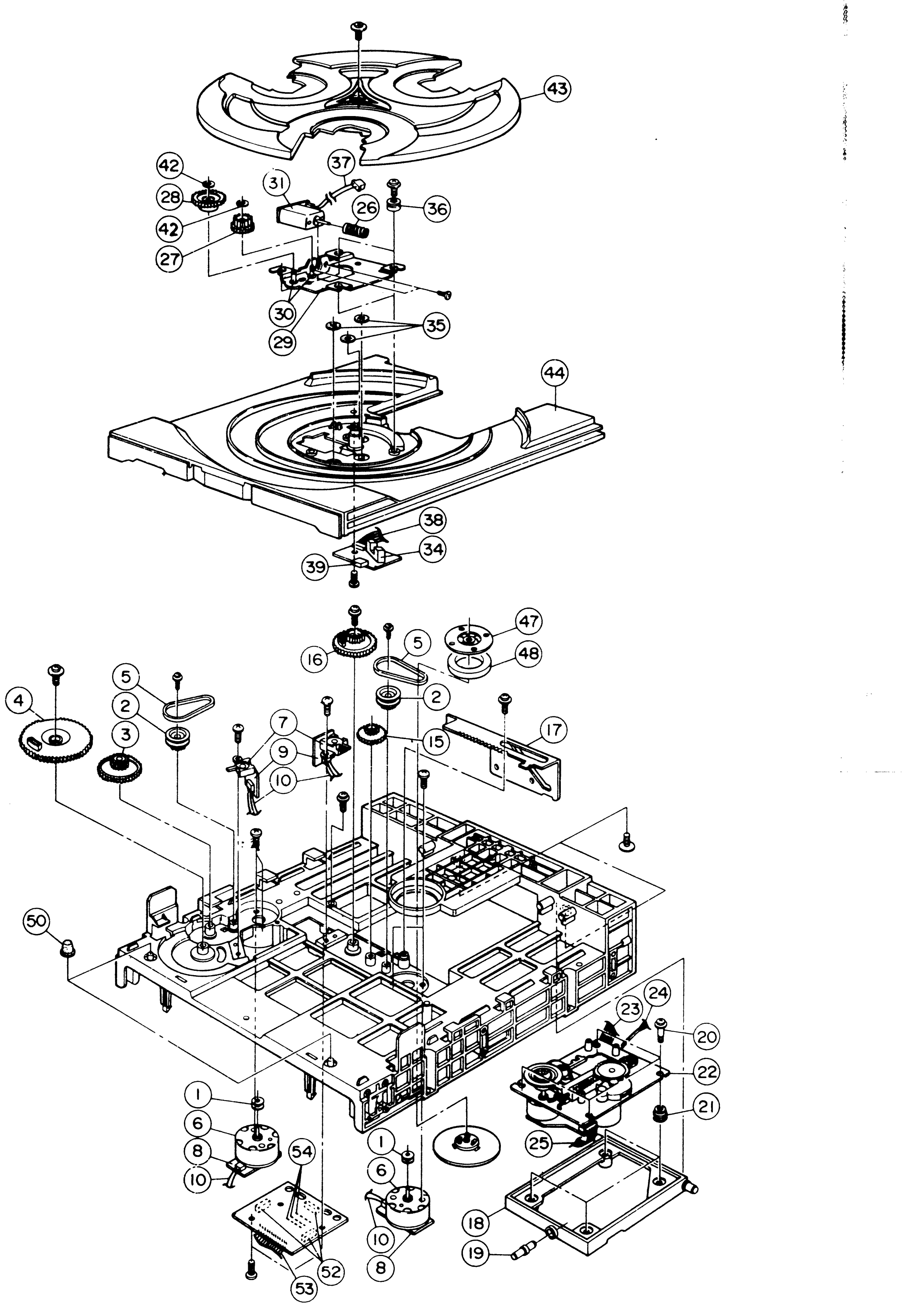
9-2. CD DECK section

9-2-1. CD DECK ASS'Y parts list

No.	Code no.	Description	Specification	Q'TY	REMARK
	* CMS-CR3	DECK-CD	CMS-CR3		
1	11504-0008-00	PULLEY-MOTOR	D4.0 P.O.M(M90-02) BLK	2	
2	11474-0065-00	GEAR-PULLEY	M0.6 Z16 SP	2	
5	11494-0007-00	BELT-DISC	FR W1.5 T1.5 L67.23 CR(NEOPLANE)	2	
6	B3070-0002	MOTOR-DC	RF-500TB 9V	2	
6	16829-0015-00	MOTOR-DC	SM-3220C 9V 130MA	2	
7	B3006-0048	SW-MICRO	2C 2P NSH 12V 50DEG	1	
10	1SHA1-002-510	CONNECTOR-WIRE(MS)	51004-0500-5/1007#28	2	
15	11474-0068-00	GEAR-UD(1)	M0.5/M0.6 Z17/Z45	1	
16	11474-0069-00	GEAR-UD(2)	M0.8/0.5 Z19/60 BLK	1	
17	11474-0070-00	GEAR-CAM	M0.8 Z21 SP P.O.M BLK	1	
18	11533-0043-00	LEVER-LIFT(DECK)	L115 ABS(GLASS 20%)	1	
19	11404-0105-00	SHAFT-DECK	D5.5 L19.6 SUS304	1	
20	15104-531-710	SHAFT-CD	FE FZY 2.6 X 10.5	4	
21	16174-503-411	RUBBER-CD	SI RUBBER BLU	4	
22	* CMS-A30NM6	DECK-CD	CMSA30NM6	1	
23	13076-048-020	CONNECTOR-WIRE/BN	PHR-08P/51004-08P 1007 #28 200	1	
24	13052-902-020	CONNECTOR-WIRE/BN	PHR-08P/51004-08P 2851 #30 200	1	
25	13070-046-125	CONNECTOR-WIRE/BN	51004-51004-06P 1007 #28 350	1	
26	11474-0071-00	GEAR-WORM	M0.5 POM(M90-02) WHT	1	
27	11474-0072-00	GEAR-ROULETTE(1)	M0.5/0.5 Z20/31 SP/WO NYL	1	
28	11474-0073-00	GEAR-ROULETTE(2)	CMS-CR3 M0.6/0.5 Z20/48	1	
29	13014-0209-00	BRACKET-MOTOR	CMS-CR3 T1.0 NTR SECC	1	
30	11404-0106-00	SHAFT-MOTOR(1)	CMS-CR3 D2.5 L9.3	2	
31	B3070-0113	MOTOR-DC	FF-130SH-14230 5V	1	
34	16219-0003-00	SENSOR-ROULETTE	SG-207 CMS-CR1	1	
35	13054-0073-00	CUSHION-MOTOR	CMS-CR3 T0.8 BLK MBR	3	
36	13054-0081-00	CUSHION-BRAKET	CMS-CR3 T2.0 BTR BUTYL	4	
37	1SHA1-002-509	CONNECTOR-WIRE	51004-0200-2/1571#28 MM40 SLD	1	
38	1SHA1-002-511	CONNECTOR-WIRE	51004-0500-5/#20080 MM260 PLATE	1	
39	13349-139-030	CONNECTOR-WAFER	53015-0310 2.0MM	1	
42	A0107-0036	WASHER-POLY	ID2.00 D5.0 T0.4 BLK	2	
43	13601-0011-00	TRAY-ROULETTE	CMS-CR3 W245.5 ABS	1	
44	13600-0012-00	TRAY-DISC	CMS-CR3 W247 L270 ABS	1	
47	13014-0210-00	BRACKET-CHUCK	CMS-CR3 T0.8 NTR	1	
48	14014-500-600	MAGNET-CHUCK	FERRITE 6P	1	
50	13054-0080-00	CUSHION-STOPPER	CMS-CR3 T2.0 BLK	2	
52	13349-119-050	CONNECTOR-WAFER	53014-0510 2.0MM	3	
53	1SHA1-002-512	CONNECTOR-WIRE	51004-0500-13/1007#28 MM120 PLATE	1	
54	13099-500-310	WIRE-JUMP FOR TAPE	TA 1/0.6MM 52X5MM	3	

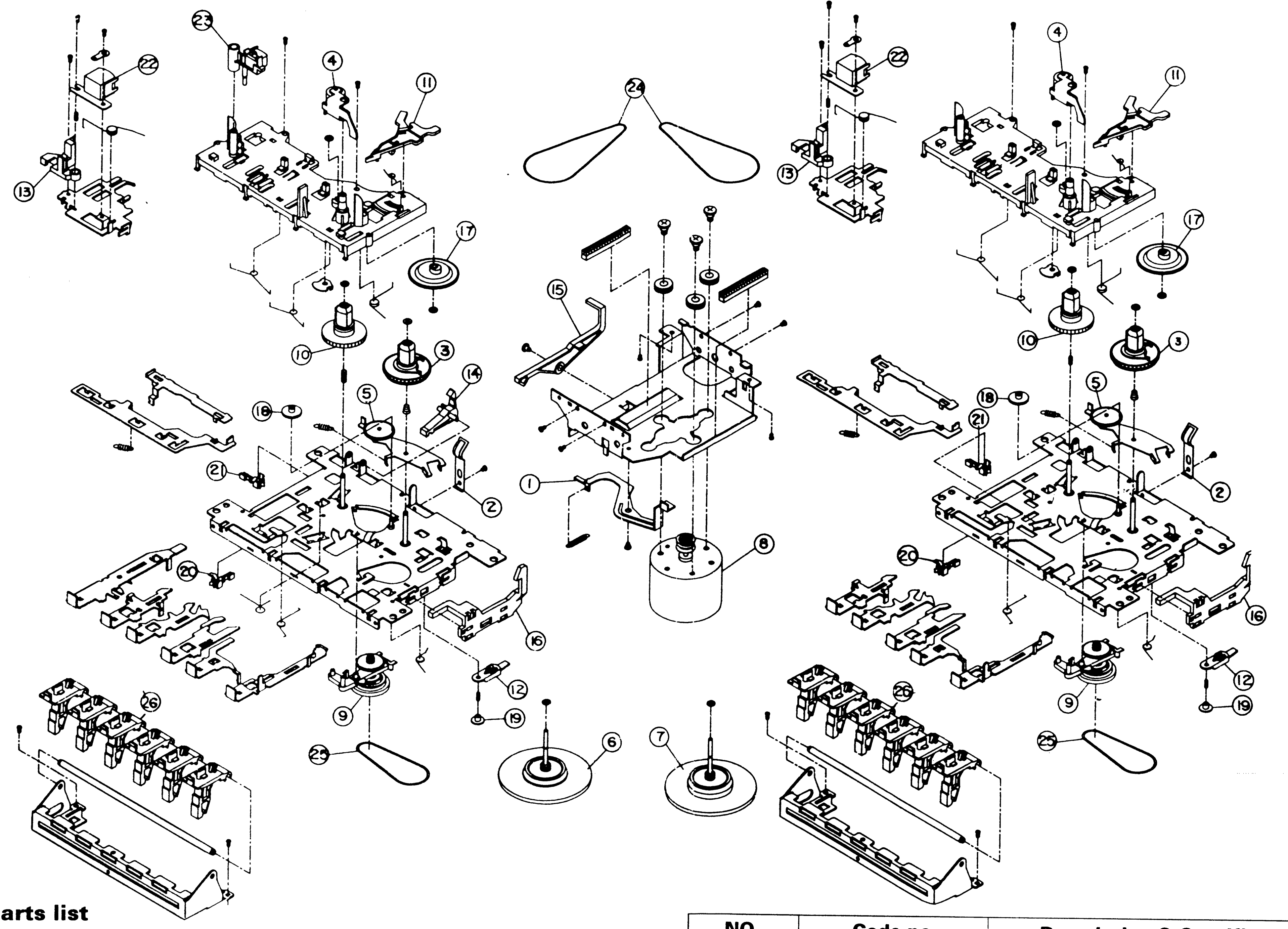
◉ Parts will not be supplied if they are not listed in the parts list,even if they appear on the assembling illustrations with reference No.

9-2-1. CDP Exploded view (CMS-CR3)



9-3. Cassette deck section

9-3-1. Cassette deck exploded view (ADR-2006FW SCM-7800)



9-3-2. Cassette deck parts list

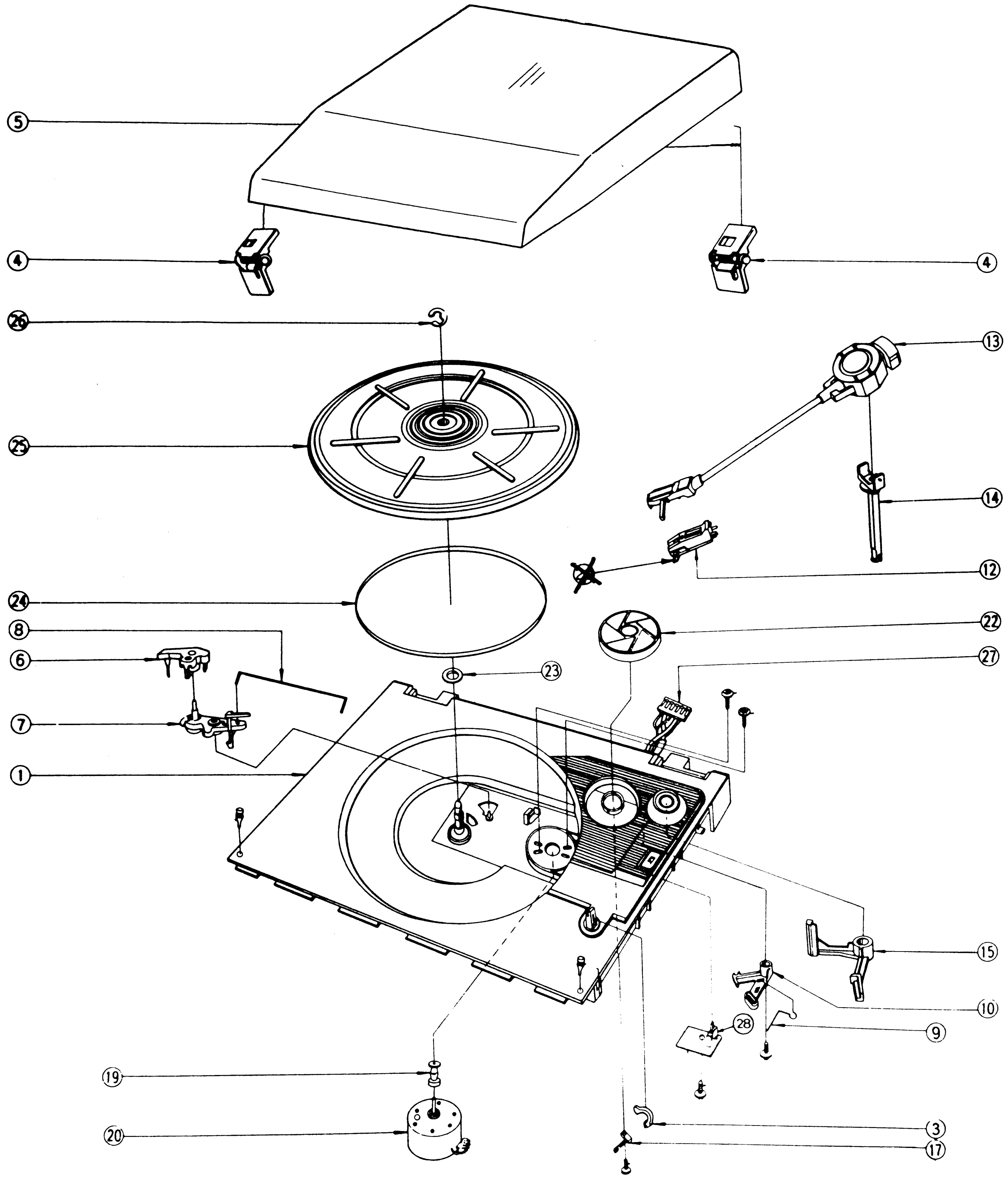
No.	Code no.	Description & Specification	Q'TY.	Remark
	17159-0045-00	DECK-CASSETTE ; ADR2006 FW	1	
1	10000-607-186	LEVEL-SYNCHRO ; 11134-01280AA	1	
2	10000-607-146	SP PACK ; 51299-02506XC	2	
3	10000-607-101	TAKE UP REEL ASSY ; ADR28-010	2	
4	10000-607-103	PINCH ARM ASSY ; ADR26-001	2	
5	10000-607-104	IDLER ARM ASSY ; ADR02-042	2	
6	10000-607-105	FLYWHEEL GEAR S ASSY ; ADR15-021	1	
7	10000-607-106	FLYWHEEL GEAR D ASSY ; ADR15-021	1	
8	10000-502-020	MOTOR ; EG530YD2B	1	
9	10000-607-108	FR ARM ASSY	2	
10	10000-607-109	SUPPLY REEL GEAR ASSY	2	
11	10000-607-117	ARM-SENSOR 11102-00530AA	2	
12	10000-607-111	PAUSE LOCK CAM	2	
13	10000-607-113	HEAD BASE M	2	
14	10000-607-145	LEVEL REC SAFETY ; 11134-01000AA	1	
15	10000-607-184	LEVEL-RELEASE ; 11134-01240AA	1	
16	10000-607-160	LEVEL EJECT (F) ; 11134-01220AA	2	
17	10000-607-114	CAM GEAR	2	
18	10000-607-115	F.F GEAR ; 11128-00055AA	2	
19	10000-607-116	PAUSE CAP ; 11116-00011AA	2	
20	10000-607-178	LEAF SW (MAIN) ; MSW1541 XACV	2	
21	10000-607-179	LEAF SW (REC) MSW1716CV	1	
22	10000-523-008	R/P HEAD ; MS15R-AA2N1	2	
23	10000-607-162	ARM-MAGNETIC ; 11102-00520AA	1	
24	10000-607-159	BELT MAIN ; 59.7PI X 1.0T	2	
25	10000-607-156	BELT SUB ; 34.7 PI X 1.0T	2	
26	10000-607-128	BUTTON KNOB ; 11133-00010AA	12	

9-4. Turntable section

9-4-1. Parts list

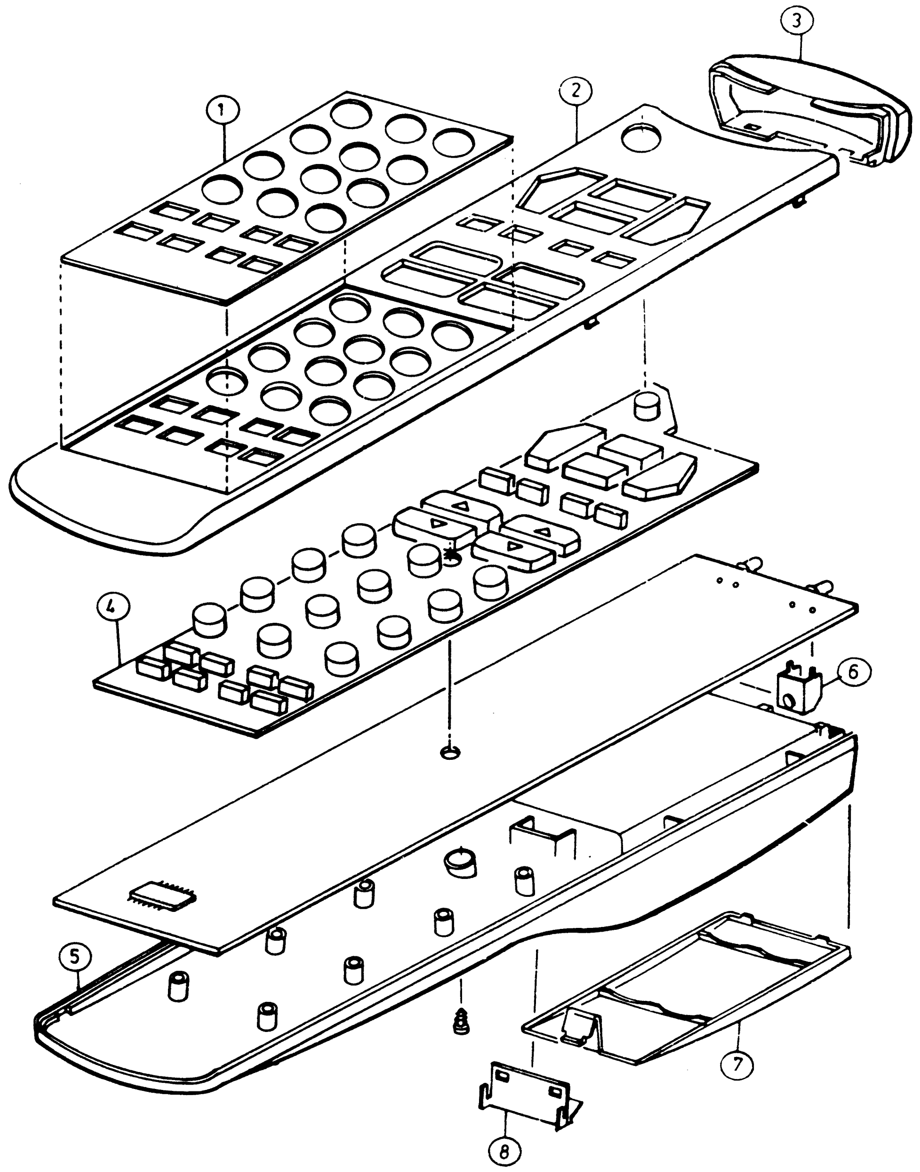
No.	Code no.	Description	Specification	Q'TY	REMARK
	19279-0001-00	ASS'Y T/TABLE	SCM-7450	1	
1	12000-0210-00	CABINET-TOP	SCM-7450 T2.5 BLK ABS 94HB	1	
3	10000-451-041	LOCKER-ARM(T/T)	SCM6550 / SVC POM BLK T/TABLE	1	
4	10000-451-033	HINGE ASSY	SCM7450(T/T) SPC1 SWRM PWR T1.0	1	
5	13311-0119-00	COVER-DUST	SCM-7450 T3 SMOKE GP150	4	
6	10000-451-042	PLATE CLUTCH(T/T)	SCM6550 / SVC POM BLK T/TABLE	1	
7	10000-451-043	GUIDE-CLUTCH(T/T)	SCM6550 / SVC POM BLK T/TABLE	1	
8	10000-451-008	LINK ACTUATING	SCM6550 (T/T) STS T1.5	1	
9	10000-451-009	SPRING ADJUST	SCM6550 (T/T) STS T0.25	1	
10	10000-451-044	LEVER-SWITCH(T/T)	SCM6550 / SVC POM BLK T/TABLE	1	
12	10000-451-012	CARTRIDGE	CP-405-30	1	
13	10000-451-045	TONE ARM(T/T)	SCM6550 / SVC POM T/TABLE	1	
14	10000-451-046	HOLDER-ARM(T/T)	SCM6550 / SVC POM T/TABLE	1	
15	10000-451-050	FEED-ARM(T/T)	SCM6550 / SVC POM T/TABLE	1	
17	10000-451-017	SWITCH-LEAF	LSB661123A3	1	
19	10000-451-019	PULLY MOTOR	BSBM SCM6550(T/T)	1	
20	10000-451-049	MOTOR(T/T)	SCM6550 / SVC SHR2R6	1	
22	10000-451-047	ADAPTER EP(T/T)	SCM6550 / SVC POM T/TABLE	1	
23	10000-451-023	SPACER	SCM6550 (T/T) PC T0.5	1	
24	10000-451-024	BELT	SCM6100, RC-WRT	1	
25	10000-451-048	PLATTER-(T/T)	SCM6550 / SVC POM T/TABLE	1	
26	10000-451-026	E-PING	SCM6550(T/T) STS T0.8	1	
27	10000-451-027	CONNECTOR-5P	SC25 - 05HG	1	
28	10000-451-028	SLIDE SWITCH	DSS - 1123	1	

9-4-2. Exploded view



9-5. Remote control

9-5-1. Exploded view



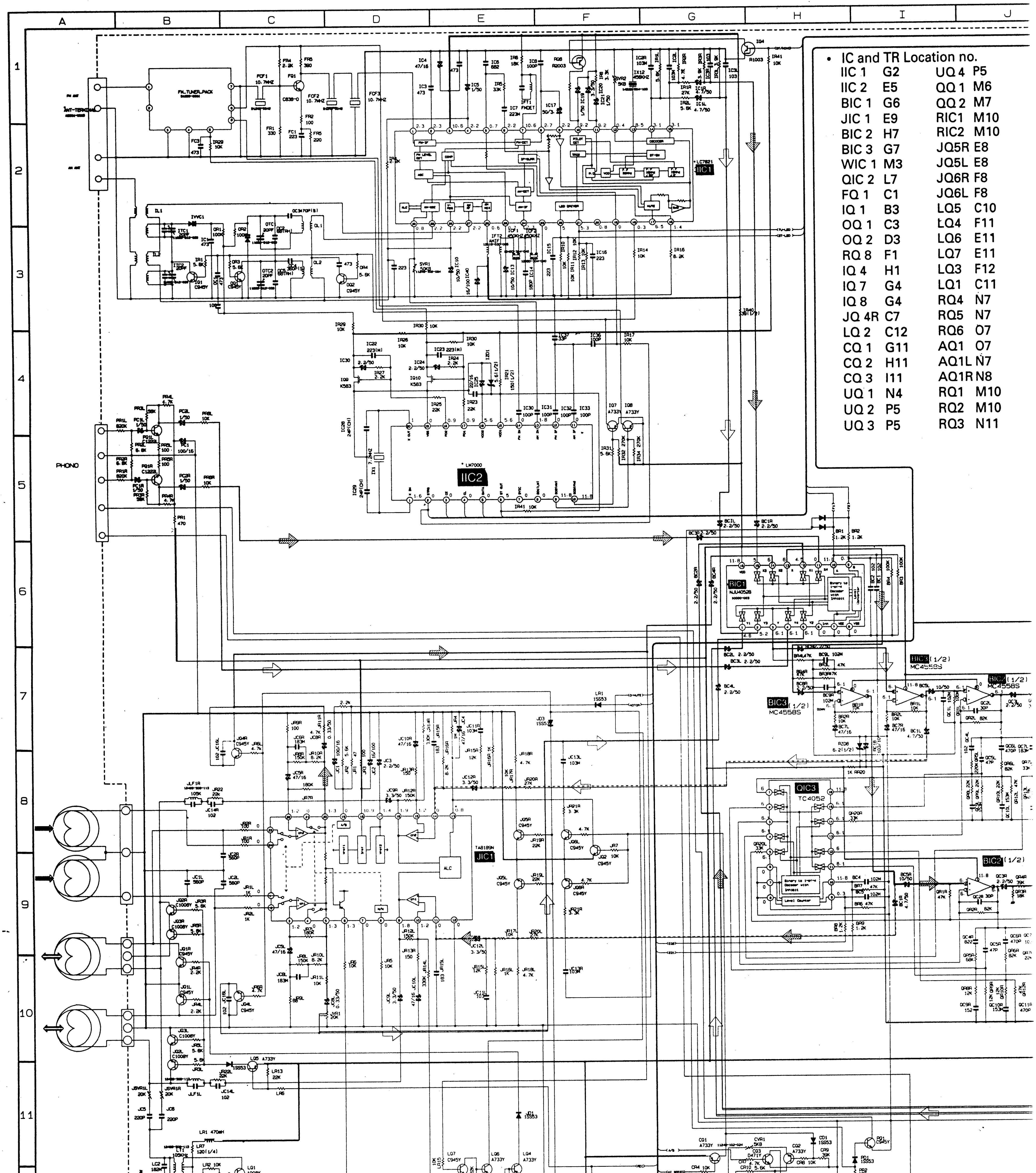
9-5-2. Parts list

No.	Code no.	Description	Specipication	Q'TY	Remark
	19239-0022-00	ASS'Y REMOCON	SCM7450/EXP SMALL TYPE	1	
1	14014-0005-12	INLAY-REMOCON	SCM7450/EXP-B PC T0.5 BLK	1	
2	12002-0054-00	CABINET-TOP	SCM7450/EXP ABS 94HB T2 BLK	1	
3	12713-0008-00	LENS-REMOCON	PC MQ360R T2.5	1	
4	14083-0136-07	KNOB-REMOCON	SCM-7450 BLK SILICON	1	
5	12001-0055-00	CABINET-BOTTOM	ABS 94HB T2 BLK	1	
6	12724-0046-00	SPRING-BATTERY	PS SUS T0.15 W22.3 L12	2	
7	13313-0026-00	COVER-BATTERY	ABS 94HB T1.5 BLK	1	
8	12724-0047-00	SPRING-BATTERY	PS SUS T0.3 W15.5 L9	1	
	11449-518-101	CONDENSER AXIAL-LEAD	50V UP050 B100-K	2	
	12149-401-150	TRANSISTOR	KSD 471-Y, TAPE	1	
	14539-504-030	CERAMIC-RESONATOR	CSB455EBL	1	
	B4012-0014	IC-LINEAR	LC7464M-8117 SOP REMOCON	1	

10. Schematic diagram

10-1. Main section

1. The unit of all
2. The unit of all
3. The schematic
4. ⚠ indicates



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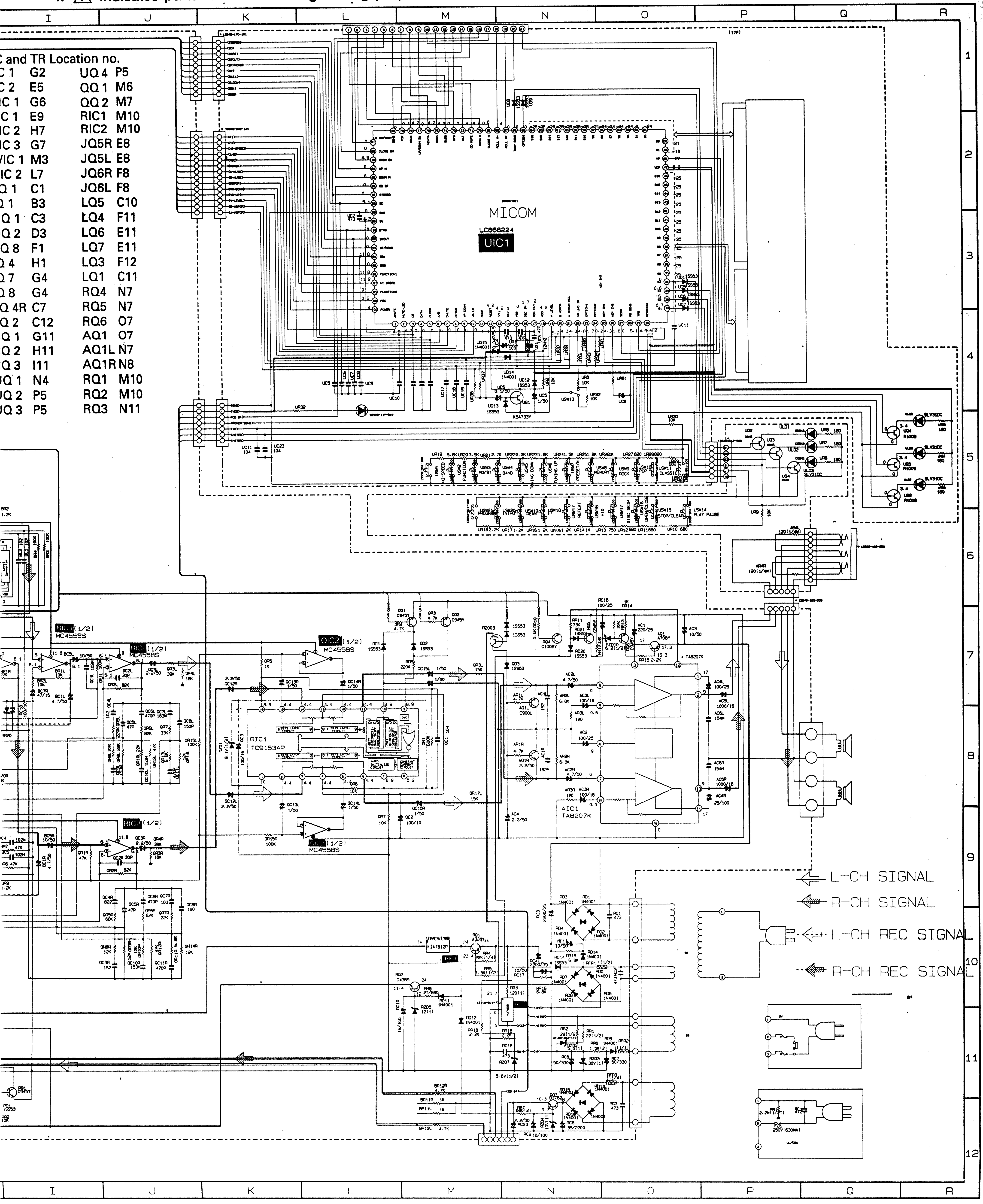
11
12
FM.TUNER.PACK
ANT-TERMINAL
PHONO
LC7821
IIC1
LM7000
IIC2
NJU4052B
BIC1
MC4558S
BIC3 (1/2)
BIC2 (1/2)
TC4052
QIC3
TA8189N
JIC1
ALC

- IC and TR Location no.

IIC 1	G2	UQ 4	P5
IIC 2	E5	QQ 1	M6
BIC 1	G6	QQ 2	M7
JIC 1	E9	RIC1	M10
BIC 2	H7	RIC2	M10
BIC 3	G7	JQ5R	E8
WIC 1	M3	JQ5L	E8
QIC 2	L7	JQ6R	F8
FQ 1	C1	JQ6L	F8
IQ 1	B3	LQ5	C10
OQ 1	C3	LQ4	F11
OQ 2	D3	LQ6	E11
RQ 8	F1	LQ7	E11
IQ 4	H1	LQ3	F12
IQ 7	G4	LQ1	C11
IQ 8	G4	RQ4	N7
JQ 4R	C7	RQ5	N7
LQ 2	C12	RQ6	O7
CQ 1	G11	AQ1	O7
CQ 2	H11	AQ1L	N7
CQ 3	I11	AQ1R	N8
UQ 1	N4	RQ1	M10
UQ 2	P5	RQ2	M10
UQ 3	P5	RQ3	N11

1. The unit of all resistors is Ω unless otherwise stated. (K : KΩ, M : MΩ). All resistors are 1/4W or 1/8W unless otherwise stated.
2. The unit of all capacitors is μF unless otherwise stated. (P : PF).
3. The schematic diagram is subject to change upon improvement without prior notice.
4. ⚠ indicates parts for circuit safe guarding purposes. Therefore, when replacing be sure to use specified parts only.



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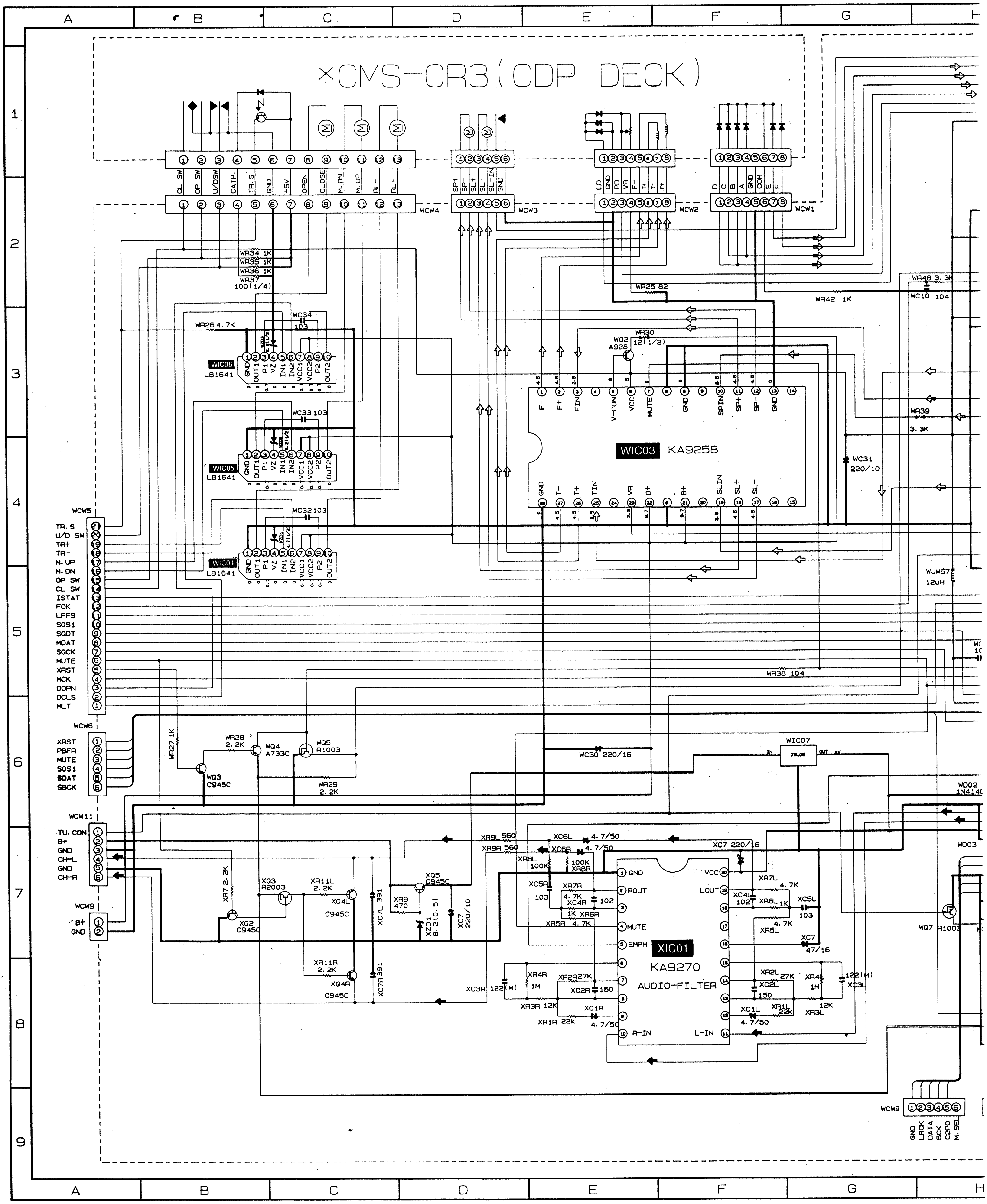
MICOM
LC866224
UIC1
QIC1
TC9153AP
BIC1 (1/2)
MC4558S
BIC2 (1/2)
MC4558S
QIC2 (1/2)
MC4558S
AIC1
TA8207K
L-CH SIGNAL
R-CH SIGNAL
L-CH REC SIGNAL
R-CH REC SIGNAL

C and TR Location no.

C 1	G2	UQ 4	P5
C 2	E5	QQ 1	M6
IC 1	G6	QQ 2	M7
C 1	E9	RIC1	M10
IC 2	H7	RIC2	M10
IC 3	G7	JQ5R	E8
VIC 1	M3	JQ5L	E8
IC 2	L7	JQ6R	F8
Q 1	C1	JQ6L	F8
Q 1	B3	LQ5	C10
Q 1	C3	LQ4	F11
Q 2	D3	LQ6	E11
Q 8	F1	LQ7	E11
Q 4	H1	LQ3	F12
Q 7	G4	LQ1	C11
Q 8	G4	RQ4	N7
Q 4R	C7	RQ5	N7
Q 2	C12	RQ6	O7
Q 1	G11	AQ1	O7
Q 2	H11	AQ1L	N7
Q 3	I11	AQ1R	N8
JQ 1	N4	RQ1	M10
JQ 2	P5	RQ2	M10
JQ 3	P5	RQ3	N11

10-2. CD section



A
B
C
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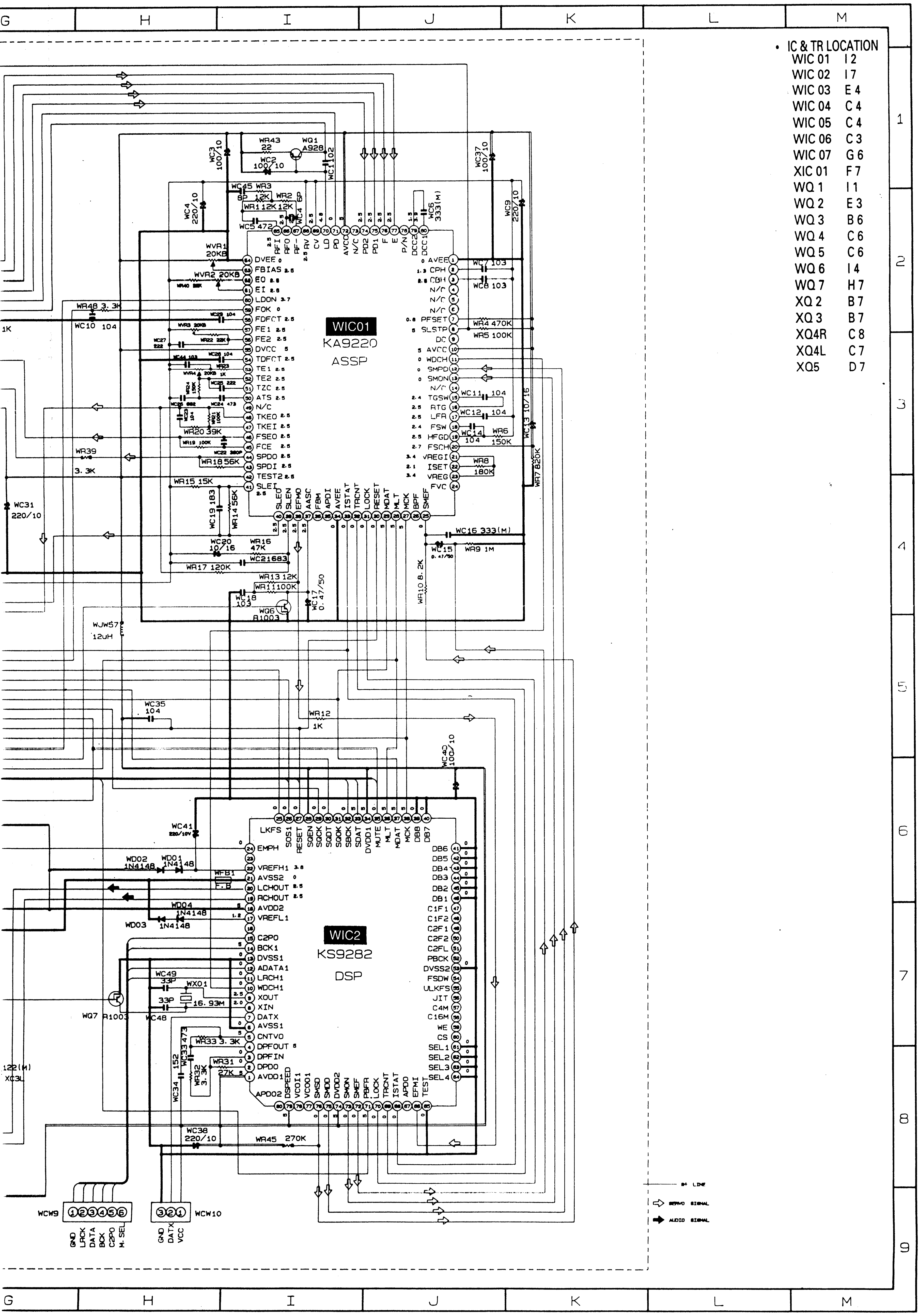
*CMS-CR3(CDP DECK)
CL SW
OP SW
U/DSW
CATH.
TR. S
GND
+5V
OPEN
CLOSE
M. DN
M. UP
RL-
RL+
WCW4
SP+
SP-
SL+
SL-
SL-IN
GND
WCW3
LD
GND
PD
VR
F-
F+
T-
T+
WCW2
D
C
B
A
GND
COM
E
F
WCW1
WR34 1K
WR35 1K
WR36 1K
WR37 100(1/4)
WR25 82
WR42 1K
WR48 3.3K
WC10 104
WR26 4.7K
WC34 103
WIC06
LB1641
GND
OUT1
P1
VZ
IN1
IN2
VCC1
VCC2
P2
OUT2
WC33 103
WIC05
LB1641
WC32 103
WIC04
LB1641
WQ2 A928
WR30 12(1/2)
WIC03
KA9258
F-
F+
FIN
V-CON
VCC
MUTE
GND
SPIN
SP+
SP-
GND
GND
T-
T+
TIN
VR
B+
B+
SLIN
SL+
SL-
WC31 220/10
WR39 3.3K
WJW57 12uH
WCW5
TR. S
U/D SW
TR+
TR-
M. UP
M. DN
OP SW
CL SW
ISTAT
FOK
LFFS
SOS1
SQDT
MDAT
SQCK
MUTE
XRST
MCK
DOPN
DCLS
MLT
WR38 104
WCW6
XRST
PBFR
MUTE
SOS1
SDAT
SBCK
WR27 1K
WR28 2.2K
WQ4 A733C
WQ5 R1003
WQ3 C945C
WR29 2.2K
WC30 220/16
WIC07
78L05
IN
OUT
5V
WD02 1N414
WD03
WCW11
TU. CON
B+
GND
CH-L
GND
CH-R
WCW9
B+
GND
XR7 2.2K
XQ3 R2003
XQ2 C945C
XR11L 2.2K
XQ4L C945C
XR11R 2.2K
XQ4R C945C
XC7L 391
XC7R 391
XR9 470
XQ5 C945C
XZD1 8.2(0.5)
XC7 220/10
XR9L 560
XR9A 560
XC6L 4.7/50
XC6R 4.7/50
XR8L 100K
100K XR8R
XC5R 103
XR7R 4.7K
XC4R 102
1K XR6R
XR5R 4.7K
XC7 220/16
XIC01
KA9270
AUDIO-FILTER
GND
ROUT
MUTE
EMPH
R-IN
VCC
LOUT
L-IN
XR7L 4.7K
XC4L 102
XR6L 1K
XC5L 103
4.7K XR5L
XC7 47/16
XC3R 122(M)
XR4R 1M
XR2R 27K
XC2R 150
XR3R 12K
XC1R
XR1R 22K
4.7/50
XR2L 27K
XC2L 150
XR4L 1M
122(M) XC3L
XC1L 4.7/50
XR1L 22K
12K XR3L
WQ7 R1003
WCW8
GND
LRCK
DATA
BCK
C2PO
M. SEL

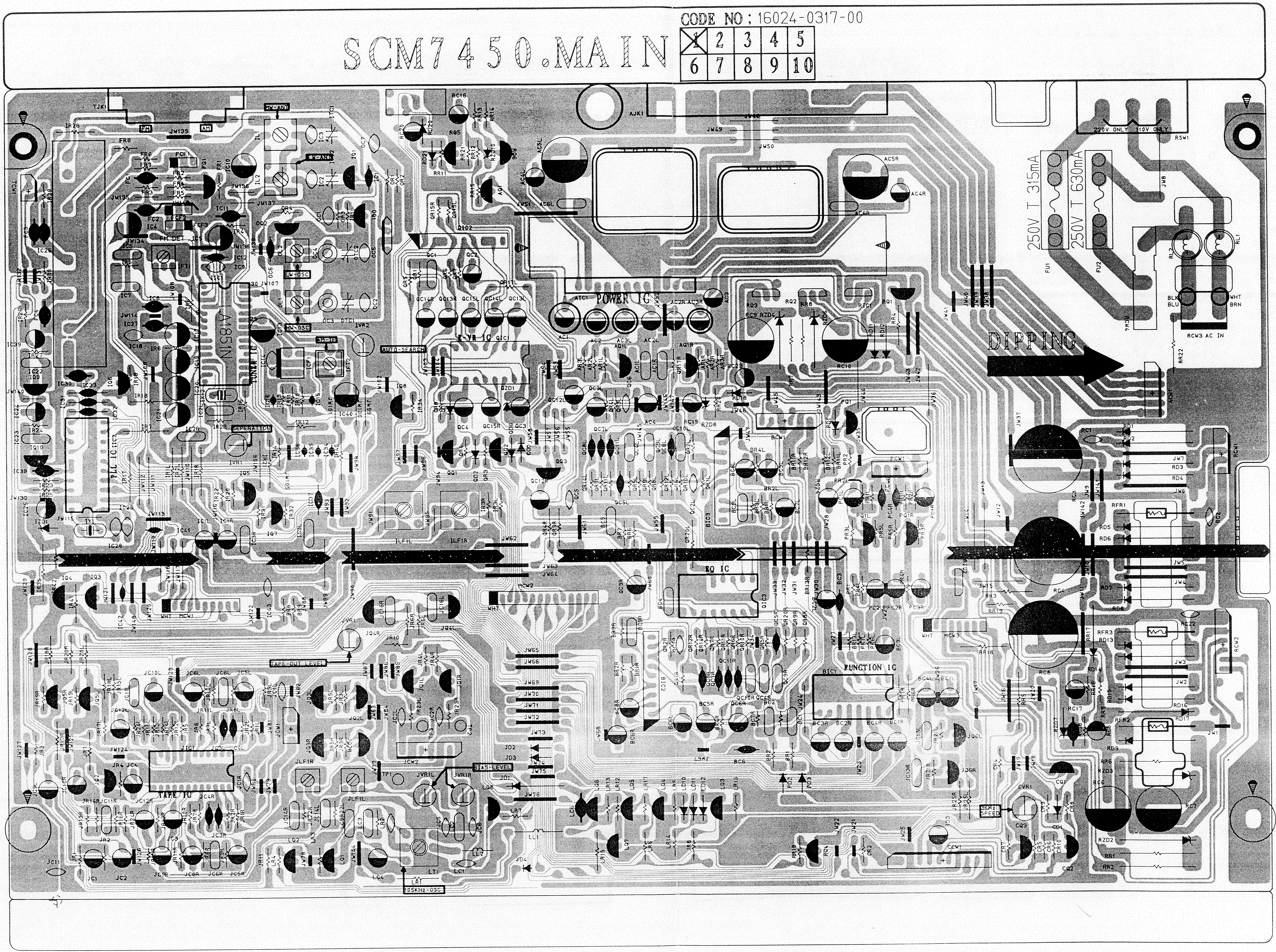

G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
WIC01
KA9220
ASSP
WIC2
KS9282
DSP
WQ1 A928
WQ6 A1003
WQ7 A1003
WX01 16.93M
WJW57 12uH
WCW9
GND
LRCK
DATA
BCK
C2PO
M.SEL
WCW10
GND
DATX
VCC
B+ LINE
SERVO SIGNAL
AUDIO SIGNAL

• IC & TR LOCATION

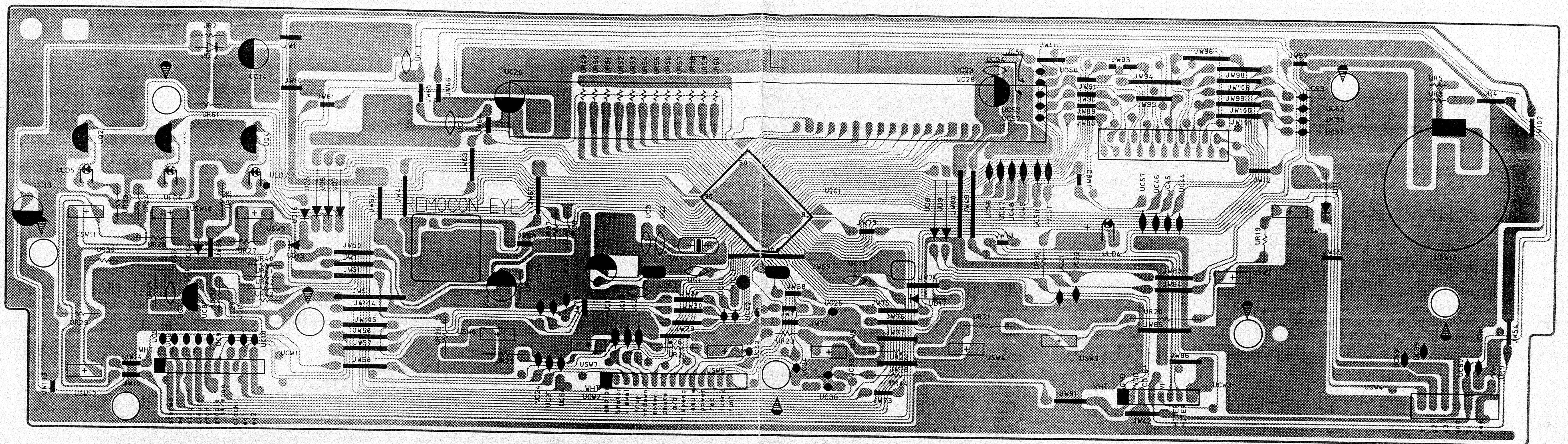
WIC 01	I 2
WIC 02	I 7
WIC 03	E 4
WIC 04	C 4
WIC 05	C 4
WIC 06	C 3
WIC 07	G 6
XIC 01	F 7
WQ 1	I 1
WQ 2	E 3
WQ 3	B 6
WQ 4	C 6
WQ 5	C 6
WQ 6	I 4
WQ 7	H 7
XQ 2	B 7
XQ 3	B 7
XQ4R	C 8
XQ4L	C 7
XQ5	D 7

11. PCB Pattern & Marking diagram

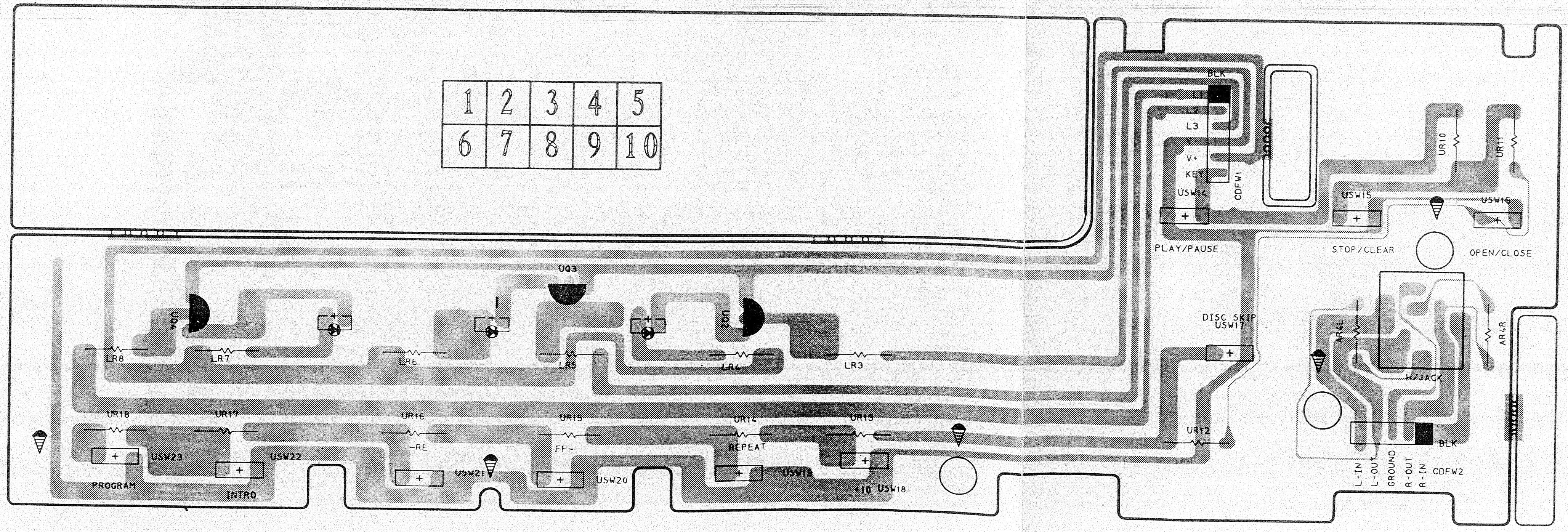
11-1. Main section


CODE NO ; 16024-0317-00
SCM7450.MAIN
1 2 3 4 5
6 7 8 9 10
POWER IC
TUNER IC
PLL IC
EQ IC
FUNCTION IC
TAPE IC
DIPPING
250V T 315mA
250V T 630mA
220V ONLY
110V ONLY
AUTO-SEARCH
SEPARATION
TAPE-OUT LEVEL
BIAS-LEVEL
105KHz-OSC
TAPE SPEED
RCW3 AC IN
BLK
BLU
WHT
BRN
FU1
FU2
RL1
RL2
RSW1
TJK1
AJK1

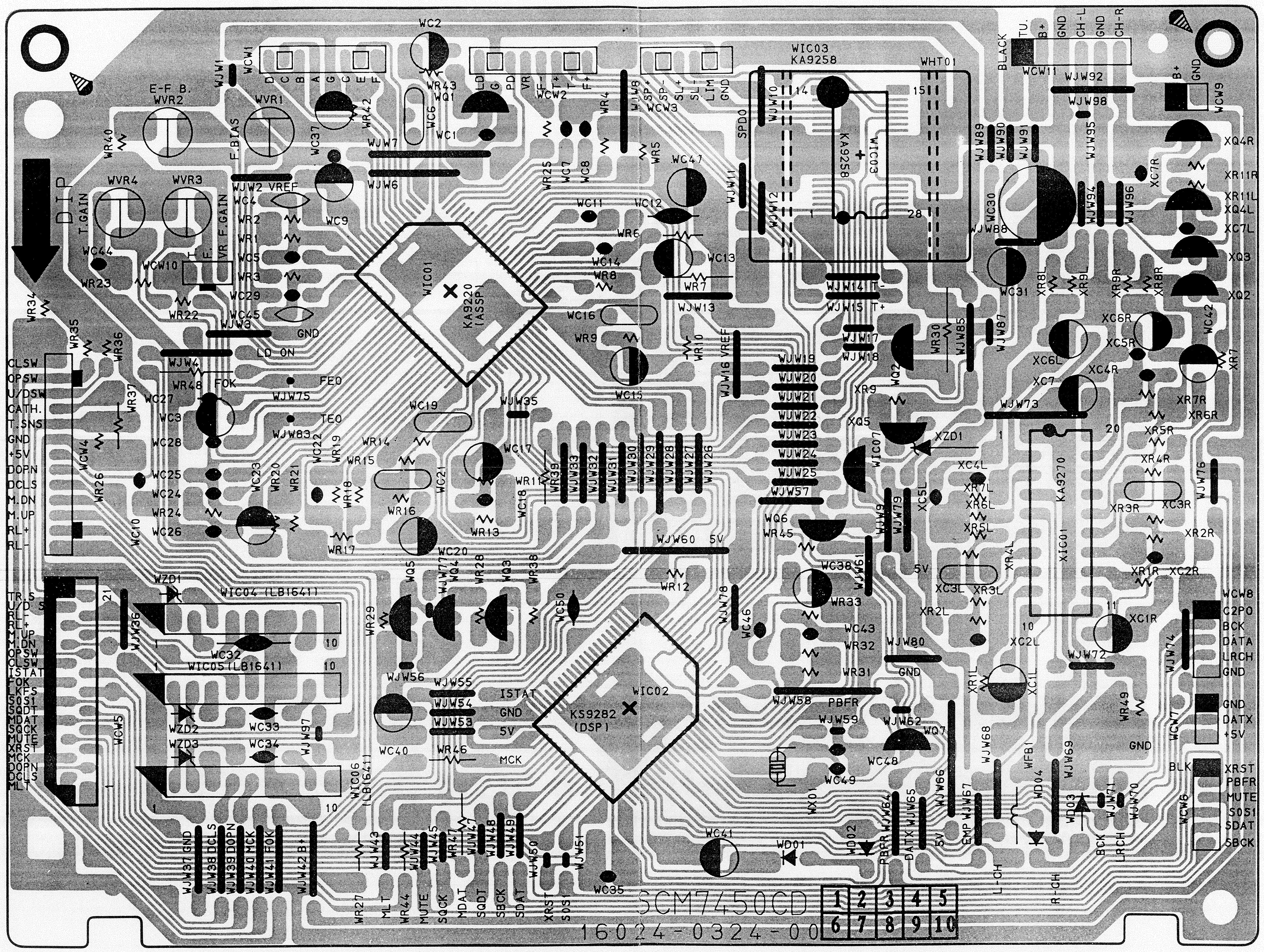
11-2. Front section


REMOCON EYE
VIC1
UC26
UC14
UC13
USW11
USW12
USW13
USW1
USW2
USW3
USW4
USW6
USW7
USW9
USW10
UCW1
UCW2
UCW3
UCW4
WHT
JW102

11-3. CD Front section

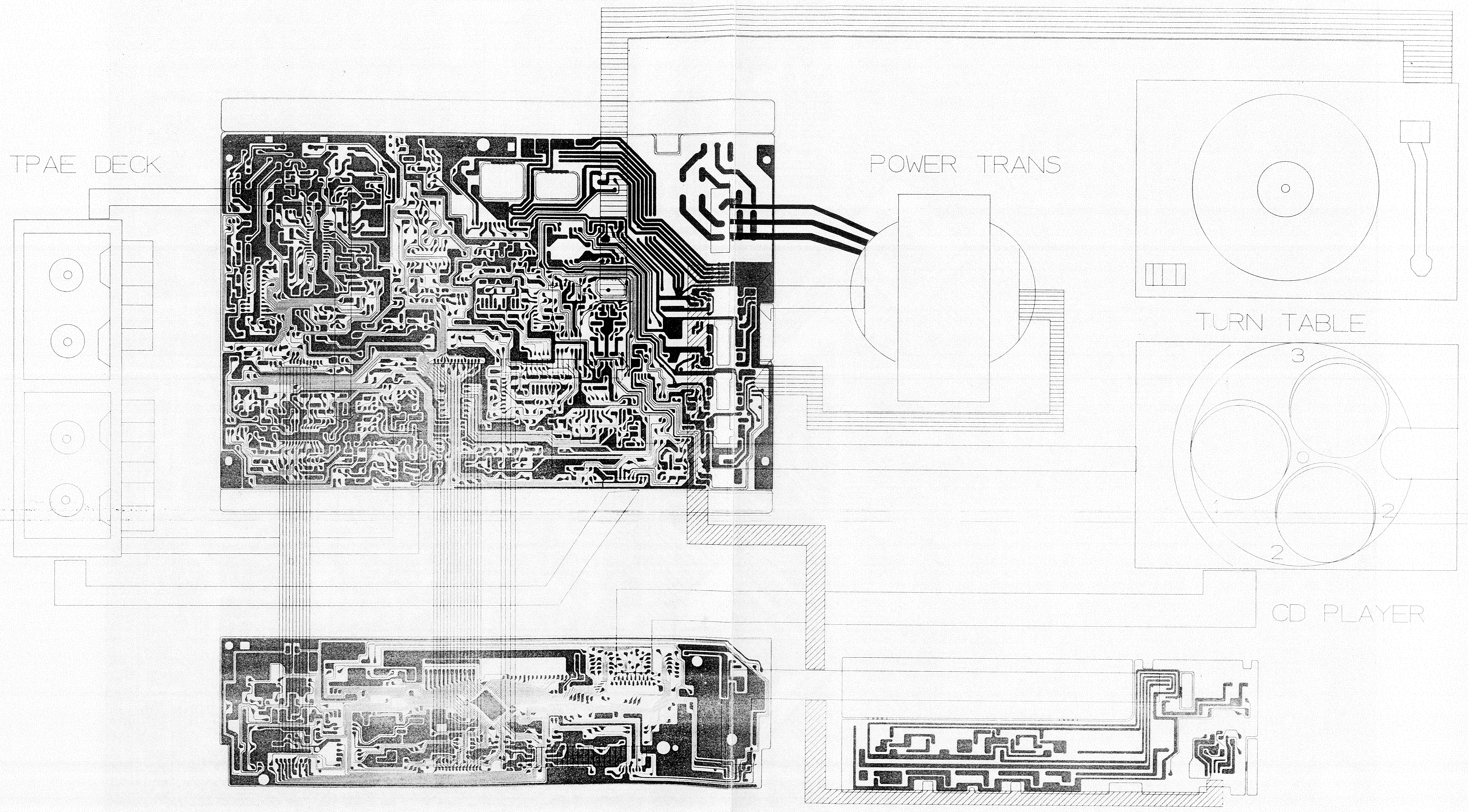

1
2
3
4
5
6
7
8
9
10
BLK
L3
V+
KEY
CDFW1
USW14
PLAY/PAUSE
USW15
STOP/CLEAR
USW16
OPEN/CLOSE
UR10
UR11
DISC SKIP
USW17
AR4L
AR4R
H/JACK
UR12
L-IN
L-OUT
GROUND
R-OUT
R-IN
CDFW2
UQ3
LR8
LR7
LR6
LR5
LR4
LR3
UR18
UR17
UR16
UR15
UR14
UR13
USW23
USW22
USW21
USW20
USW19
USW18
PROGRAM
INTRO
RE
FF
REPEAT

11-4. CD section

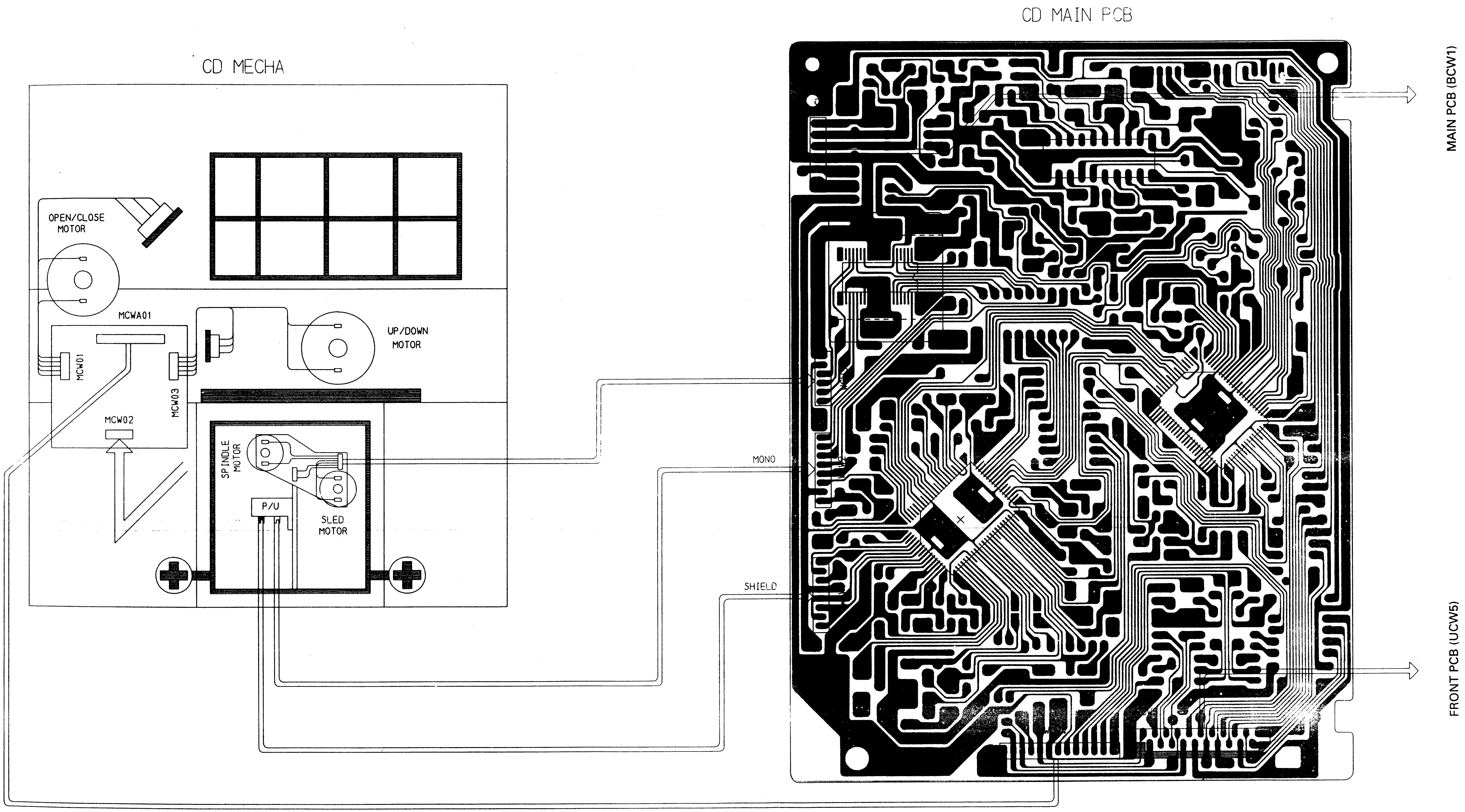

WIC01
KA9220 (ASSP)
WIC02
KS9282 (DSP)
WIC03
KA9258
WIC04 (LB1641)
WIC05 (LB1641)
WIC06 (LB1641)
XIC01
KA9270
WHT01
E-F B.
WVR1
WVR2
WVR3
WVR4
F.BIAS
T.GAIN
F.GAIN
DIP
VREF
LD ON
FEO
TEO
FOK
GND
5V
MCK
ISTAT
PBFR
SPDO
BLACK
TU.
B+
GND
CH-L
CH-R
XQ4R
XR11R
XR11L
XQ4L
XC7L
XQ3
XQ2
XR7
WCW8
C2PO
BCK
DATA
LRCH
GND
DATX
+5V
BLK
XRST
PBFR
MUTE
SOS1
SDAT
SBCK
CLSW
OPSW
U/DSW
CATH.
T.SNS
GND
+5V
DOPN
DCLS
M.DN
M.UP
RL+
RL-
TR.S
U/D S
RL-
RL+
M.UP
M.DN
OPSW
CLSW
ISTAT
FOK
LKFS
SOS1
SQDT
MDAT
SQCK
MUTE
XRST
MCK
DOPN
DCLS
MLT
WJW37 GND
WJW38 DCLS
WJW39 DOPN
WJW40 MCK
WJW41 FOK
WJW42 B+
WR27
MLT
WR44
MUTE
SQCK
MDAT
SQDT
SBCK
SDAT
XRST
SOS1
WC35
WC41
WD01
WD02
PBFR
DATX
5V
EMP
L-CH
R-CH
BCK
LRCH
SCM7450CD
16024-0324-00
1 2 3 4 5
6 7 8 9 10

12. Wiring diagram

12-1. Main section


TPAE DECK
POWER TRANS
TURN TABLE
3
1
2
2
CD PLAYER

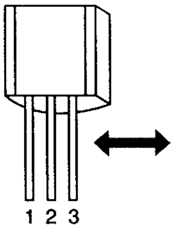
12-2. CD section


CD MECHA
CD MAIN PCB
OPEN/CLOSE MOTOR
MCWA01
MCW01
MCW03
MCW02
UP/DOWN MOTOR
SPINDLE MOTOR
P/U
SLED MOTOR
MONO
SHIELD
MAIN PCB (BCW1)
FRONT PCB (UCW5)

13. IC & TR internal diagram

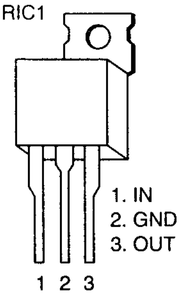
13-1. Main section

- TR

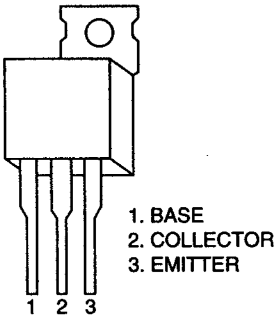


TR	1	2	3
KSR2458,KSR1003 KSR2004,KSR1002	E	C	B
KSC945,KSC1008 KSA733,KSA708, KSC838	E	B	C

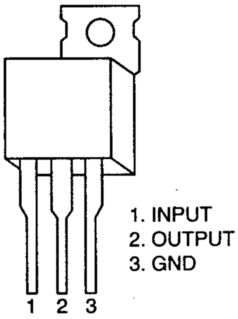
- MC7805
(REGULATOR IC)
RIC1


1. IN
2. GND
3. OUT
1 2 3

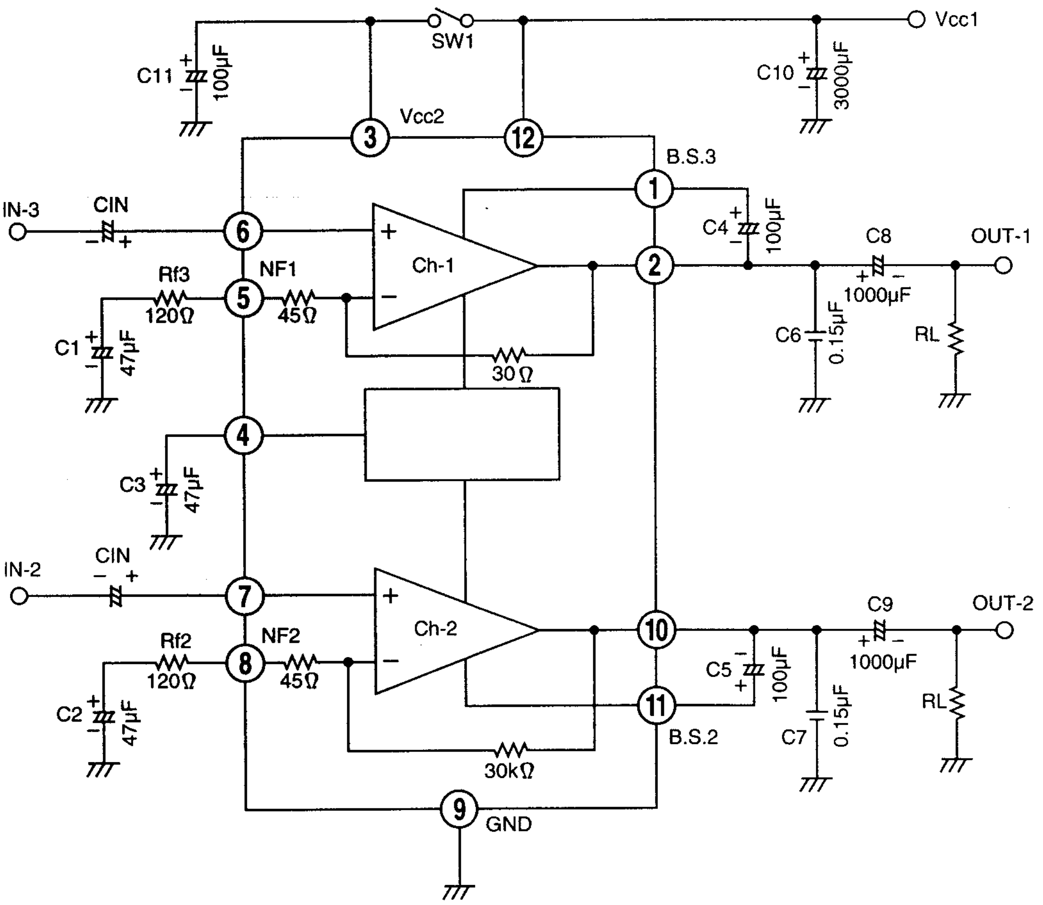
- KTC4369: RQ2


1. BASE
2. COLLECTOR
3. EMITTER
1 2 3

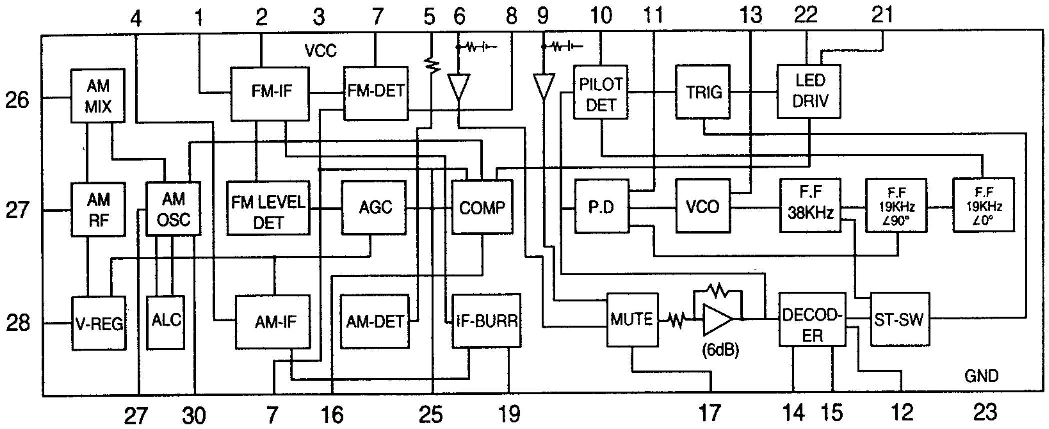
- KIA 7812PI: RIC1


1. INPUT
2. OUTPUT
3. GND
1 2 3

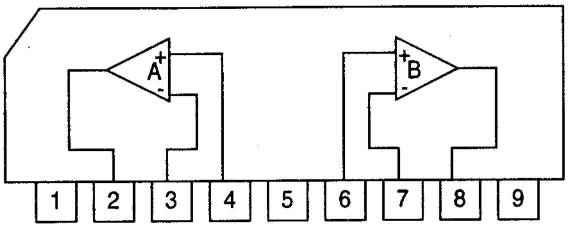
- TA8207K:


SW1
Vcc1
C11
100μF
C10
3000μF
3
Vcc2
12
B.S.3
1
IN-3
CIN
6
+
Ch-1
−
C4
100μF
C8
OUT-1
2
Rf3
120Ω
NF1
5
45Ω
1000μF
C1
47μF
30Ω
C6
0.15μF
RL
4
C3
47μF
IN-2
CIN
7
Ch-2
C9
OUT-2
10
Rf2
120Ω
NF2
8
45Ω
C5
100μF
1000μF
C2
47μF
11
B.S.2
C7
0.15μF
RL
30kΩ
9
GND

• LA1851N (FM, AM, IF IC) : IIC1

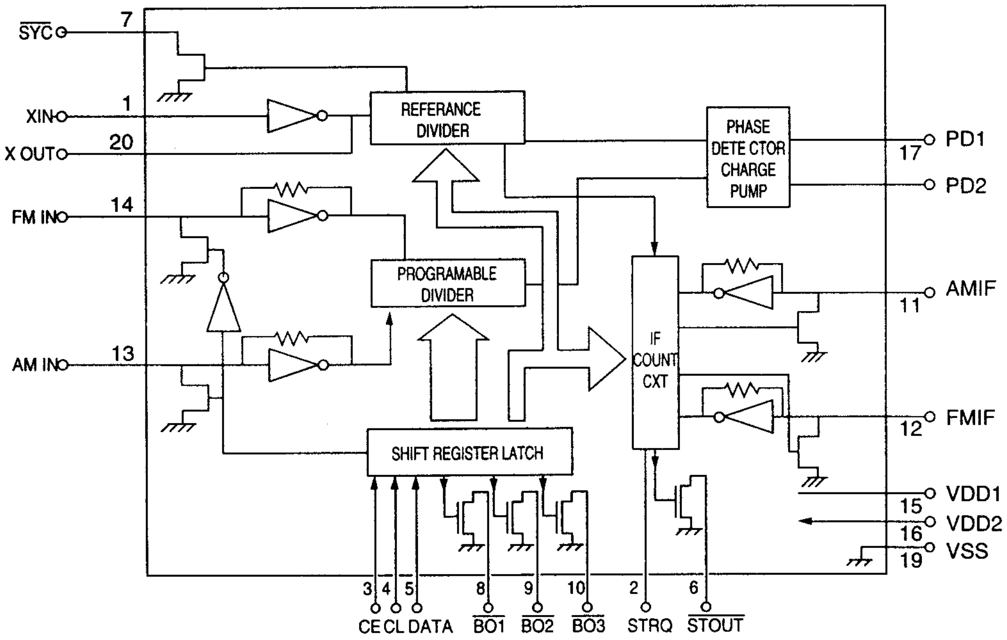

4
1
2
3
7
5
6
8
9
10
11
13
22
21
VCC
26
27
28
AM MIX
FM-IF
FM-DET
PILOT DET
TRIG
LED DRIV
AM RF
AM OSC
FM LEVEL DET
AGC
COMP
P.D
VCO
F.F 38KHz
F.F 19KHz ∠90°
F.F 19KHz ∠0°
V-REG
ALC
AM-IF
AM-DET
IF-BURR
MUTE
(6dB)
DECOD-ER
ST-SW
GND
27
30
7
16
25
19
17
14
15
12
23

• UPC457OHA/KA4558S : QIC3,4, AIC2, PIC1, BIC1, MIC1

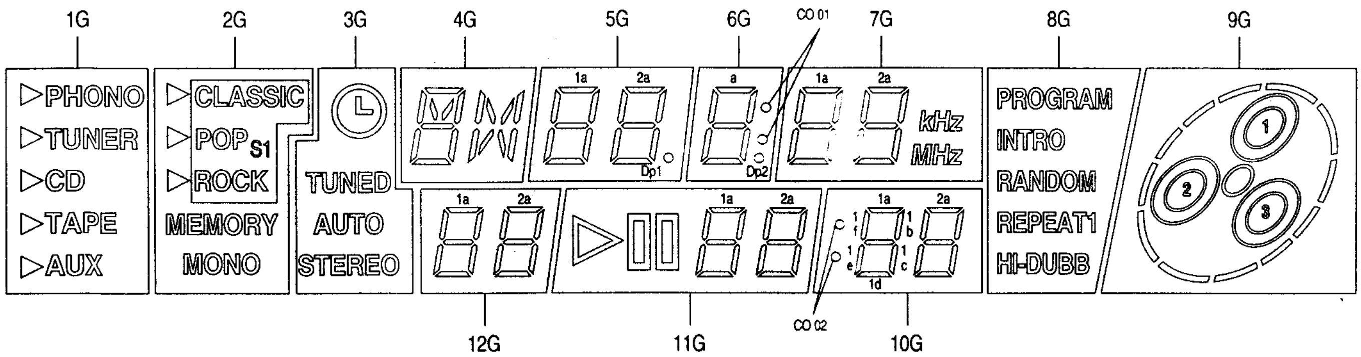

A
+
-
B
+
-
1
2
3
4
5
6
7
8
9

1. V+
2. A OUTPUT
3. A-INPUT
4. A+INPUT
5. V-
6. B+INPUT
7. B-INPUT
8. B OUTPUT
9. V-

• CM7000 : IIC2


$\overline{\text{SYC}}$
7
XIN
1
X OUT
20
FM IN
14
AM IN
13
REFERANCE DIVIDER
PHASE DETE CTOR CHARGE PUMP
PD1
17
PD2
PROGRAMABLE DIVIDER
IF COUNT CXT
AMIF
11
FMIF
12
SHIFT REGISTER LATCH
VDD1
15
VDD2
16
VSS
19
3
4
5
8
9
10
2
6
CE
CL
DATA
$\overline{\text{BO1}}$
$\overline{\text{BO2}}$
$\overline{\text{BO3}}$
STRQ
$\overline{\text{STOUT}}$

- **VFD or FLT**

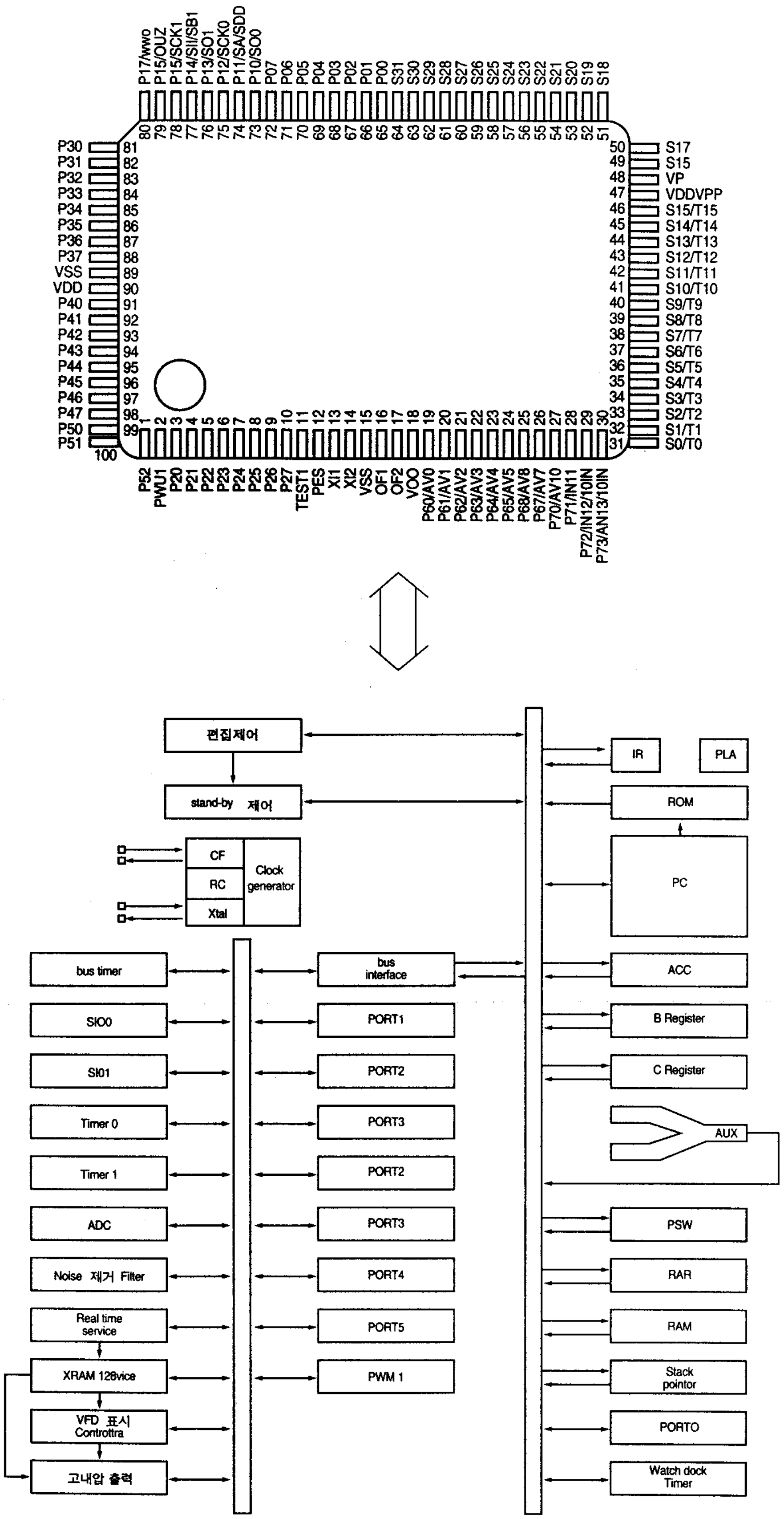

1G
2G
3G
4G
5G
6G
CO01
7G
8G
9G
PHONO
TUNER
CD
TAPE
AUX
CLASSIC
POP
S1
ROCK
MEMORY
MONO
TUNED
AUTO
STEREO
1a
2a
a
Dp1
Dp2
kHz
MHz
PROGRAM
INTRO
RANDOM
REPEAT1
HI-DUBB
1
2
3
b
c
e
1d
CO02
12G
11G
10G

PIN

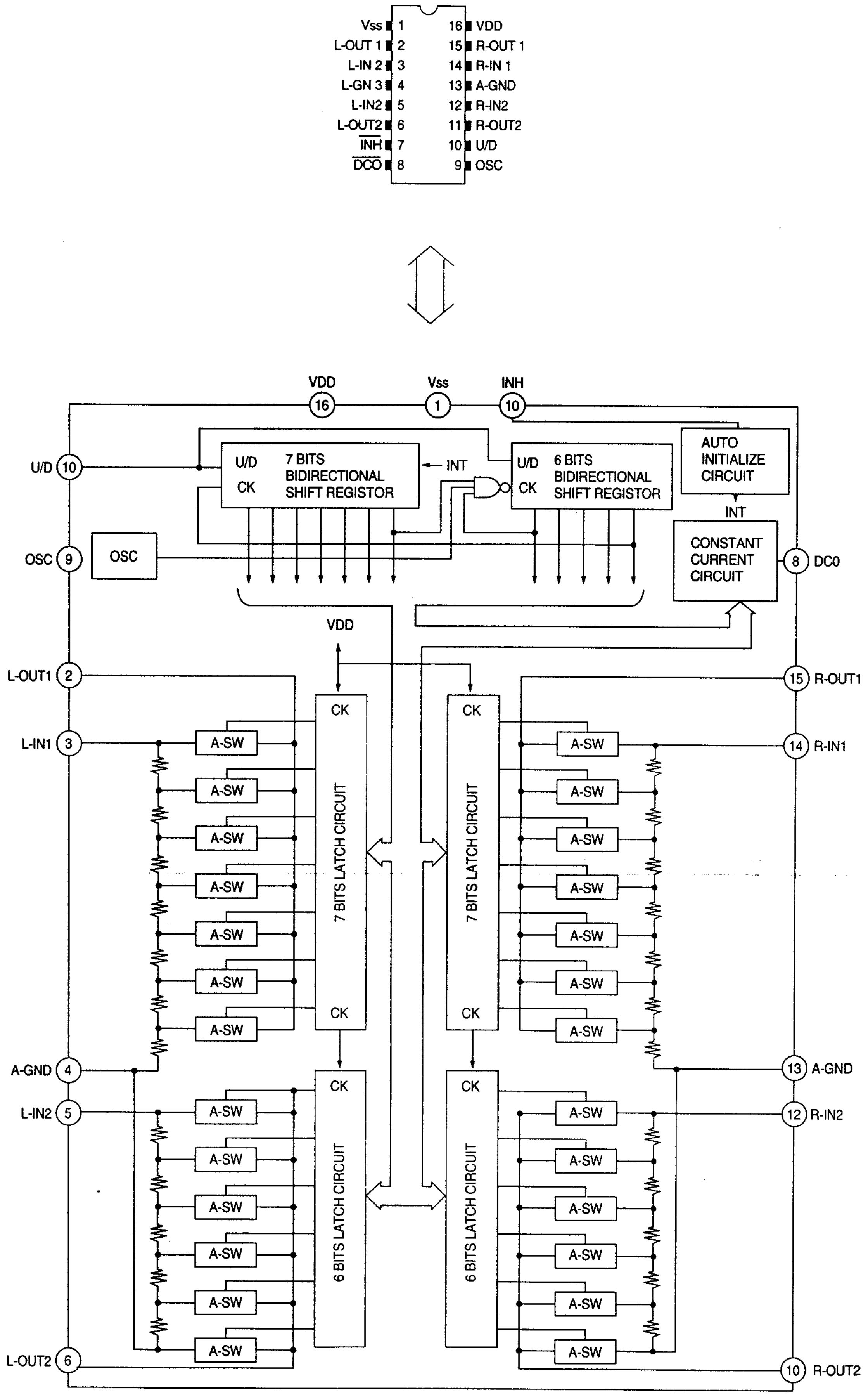
PIN NO.	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	NC	NC	NC	NC	NC	NC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NP	NP	F1	F1

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G
P1	PHONO	S1	🕓	h, k	–	coQ1	KHz	PROGRAM	S6	coQ2	▷	–
P2	TUNER	▷ (CLASSIC)	TUNED	a	1a	a	1a	INTRO	S7	1a	1a	1a
P3	CD	▷ (POP)	AUTO	b	1b	b	1b	RANDOM	S8	1b	1b	1b
P4	TAPE	▷ (ROCK)	STEREO	f	–	f	1f	REPEAT	S9	1f	1f	1f
P5	AUX	MEMORY	–	g	1g	g	1g	1	S10	1g	1g	1g
P6	▷ (PHONO)	MONO	–	c	1c	c	1c	HI-DUBB	S11	1c	1c	1c
P7	▷ (TUNER)	–	–	e	1e	e	1e	–	S12	1e	1e	1e
P8	▷ (CD)	–	–	d	1d	d	1d	–	S13	1d	1d	1d
P9	▷ (TAPE)	–	–	S2	Dp1	Dp2	MHz	–	S14	–	⏸	–
P10	▷ (AUX)	–	–	S3	2a	–	2a	–	S15	2a	2a	2a
P11	–	–	–	S4	2b	–	2b	–	S16	2b	2b	2b
P12	–	–	–	S5	2f	–	2f	–	S17	2f	2f	2f
P13	–	–	–	–	2g	–	2g	–	S18	2g	2g	2g
P14	–	–	–	–	2c	–	2c	–	1	2c	2c	2c
P15	–	–	–	–	2e	–	2e	–	2	2e	2e	2e
P16	–	–	-	–	2d	–	2d	–	3	2d	2d	2d

• **LC866216-5669(μ-COM): UIC1**

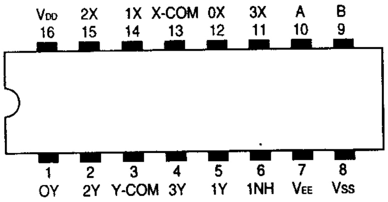

P17/wwo
P15/OUZ
P15/SCK1
P14/SII/SB1
P13/SO1
P12/SCK0
P11/SA/SDD
P10/SO0
P07
P06
P05
P04
P03
P02
P01
P00
S31
S30
S29
S28
S27
S26
S25
S24
S23
S22
S21
S20
S19
S18
P30
P31
P32
P33
P34
P35
P36
P37
VSS
VDD
P40
P41
P42
P43
P44
P45
P46
P47
P50
P51
S17
S15
VP
VDDVPP
S15/T15
S14/T14
S13/T13
S12/T12
S11/T11
S10/T10
S9/T9
S8/T8
S7/T7
S6/T6
S5/T5
S4/T4
S3/T3
S2/T2
S1/T1
S0/T0
P52
PWU1
P20
P21
P22
P23
P24
P25
P26
P27
TEST1
PES
XI1
XI2
VSS
OF1
OF2
VOO
P60/AV0
P61/AV1
P62/AV2
P63/AV3
P64/AV4
P65/AV5
P68/AV8
P67/AV7
P70/AV10
P71/IN11
P72/IN12/10IN
P73/AN13/10IN
편집제어
stand-by 제어
CF
RC
Xtal
Clock generator
IR
PLA
ROM
PC
bus timer
SIO0
SI01
Timer 0
Timer 1
ADC
Noise 제거 Filter
Real time service
XRAM 128vice
VFD 표시 Controttra
고내압 출력
bus interface
PORT1
PORT2
PORT3
PORT2
PORT3
PORT4
PORT5
PWM 1
ACC
B Register
C Register
AUX
PSW
RAR
RAM
Stack pointor
PORTO
Watch dock Timer

• TC9153AP : VR IC QIC1

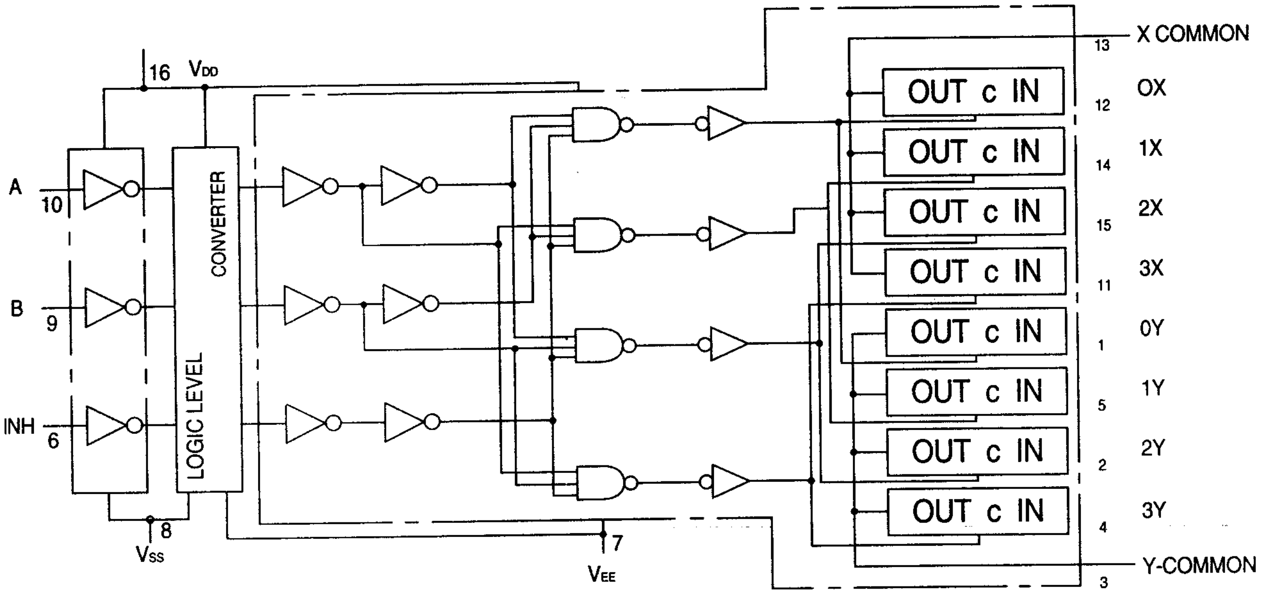


Vss 1
L-OUT 1 2
L-IN 2 3
L-GN 3 4
L-IN2 5
L-OUT2 6
INH 7
DCO 8
16 VDD
15 R-OUT 1
14 R-IN 1
13 A-GND
12 R-IN2
11 R-OUT2
10 U/D
9 OSC
VDD 16
Vss 1
INH 10
U/D 10
OSC 9
L-OUT1 2
L-IN1 3
A-GND 4
L-IN2 5
L-OUT2 6
8 DC0
15 R-OUT1
14 R-IN1
13 A-GND
12 R-IN2
10 R-OUT2
U/D CK 7 BITS BIDIRECTIONAL SHIFT REGISTOR
INT
U/D CK 6 BITS BIDIRECTIONAL SHIFT REGISTOR
AUTO INITIALIZE CIRCUIT
INT
CONSTANT CURRENT CIRCUIT
OSC
VDD
CK
7 BITS LATCH CIRCUIT
CK
6 BITS LATCH CIRCUIT
A-SW

• **FUNCTION IC : BIC1, QIC1, TC4052BP**



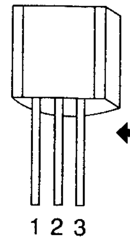
VDD 16
2X 15
1X 14
X-COM 13
0X 12
3X 11
A 10
B 9
1 0Y
2 2Y
3 Y-COM
4 3Y
5 1Y
6 INH
7 VEE
8 VSS



16 VDD
A 10
B 9
INH 6
8 VSS
LOGIC LEVEL CONVERTER
7 VEE
OUT c IN
13 X COMMON
12 0X
14 1X
15 2X
11 3X
1 0Y
5 1Y
2 2Y
4 3Y
3 Y-COMMON

13-2. CD section

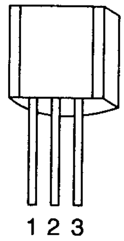
- TR



TR	1	2	3
KSR 1003,A733YC A928, C945LC	E	C	B

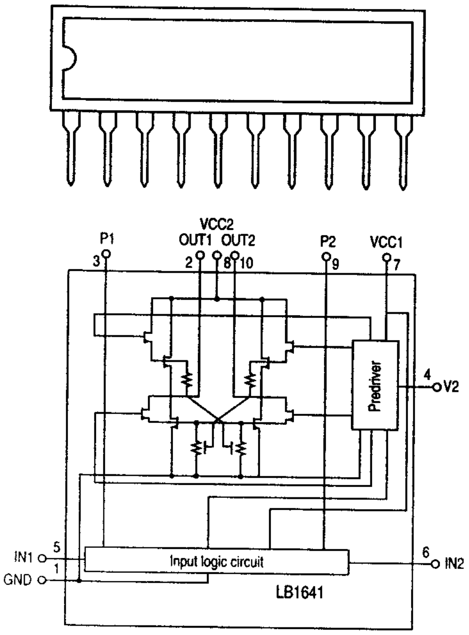
* NOTE: A 733Y, C945L = 'EBC' Type
A 733YC, C945LC = 'ECB' Type

- REGULATOR (78L05)

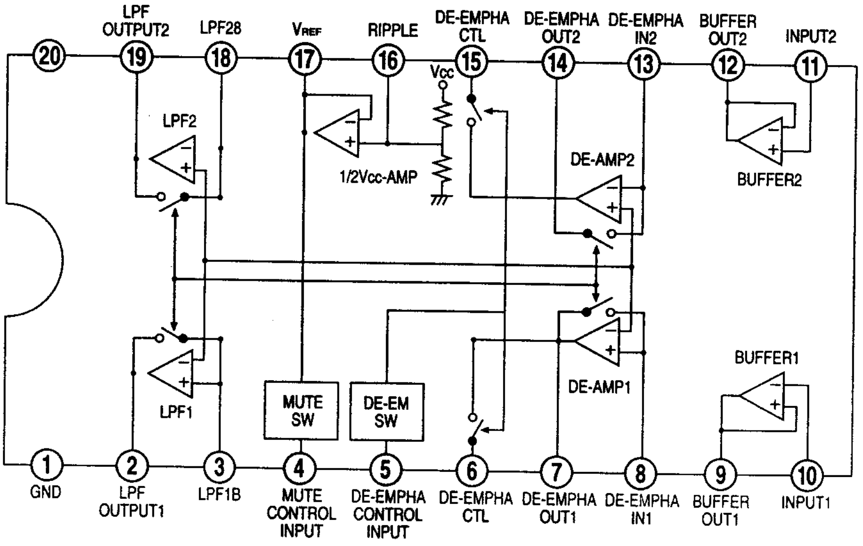


1	2	3
OUT	GND	IN

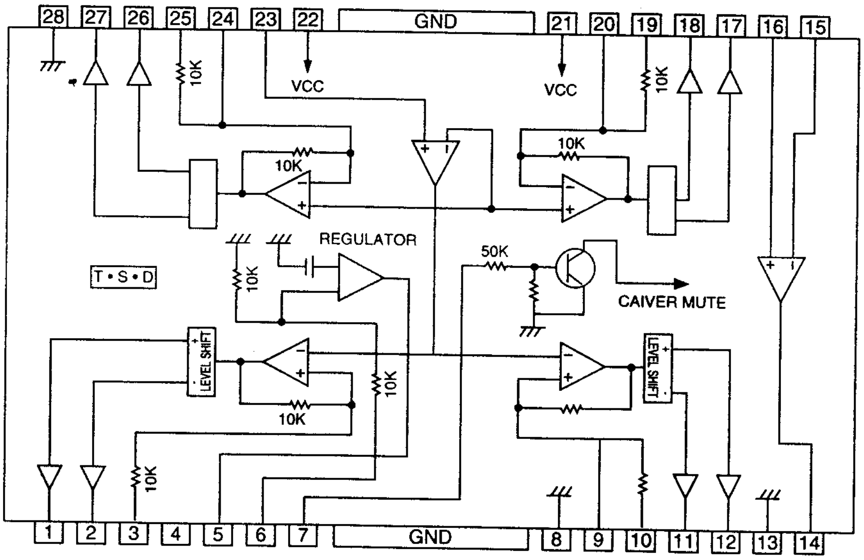
- LB 1641 (MOTOR D RIVER) : WIC 04, 05, 06


P1
VCC2
OUT1 OUT2
P2
VCC1
3
2
8
10
9
7
Predriver
4
V2
IN1
GND
5
1
Input logic circuit
6
IN2
LB1641

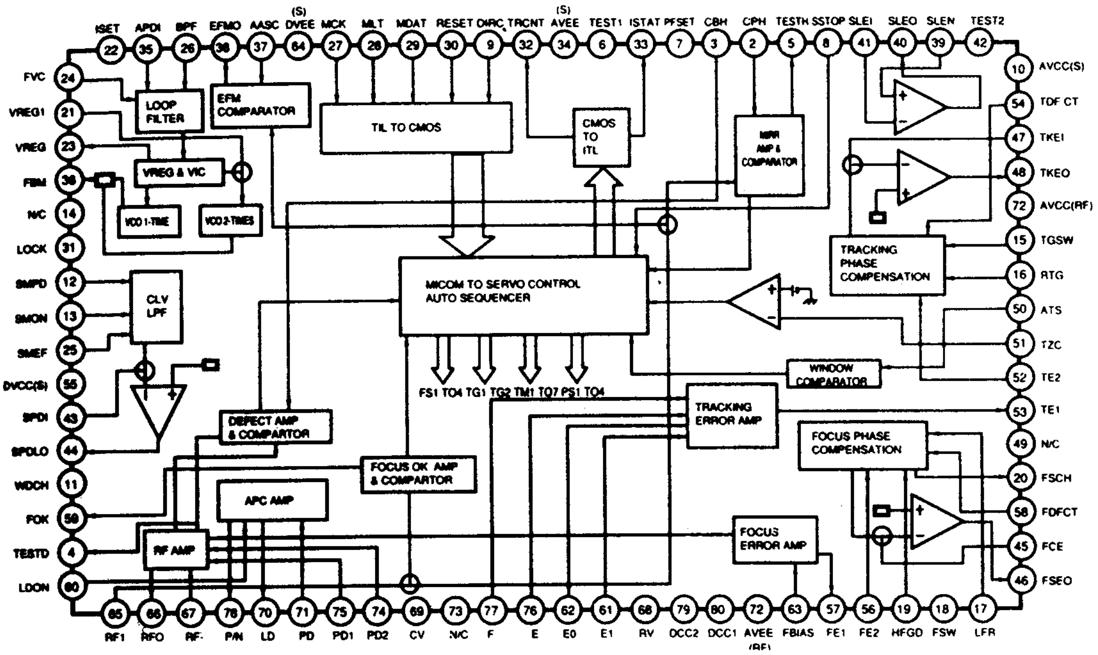
- KA 9270


LPF OUTPUT2
LPF28
VREF
RIPPLE
DE-EMPHA CTL
DE-EMPHA OUT2
DE-EMPHA IN2
BUFFER OUT2
INPUT2
⑳
⑲
⑱
⑰
⑯
Vcc
⑮
⑭
⑬
⑫
⑪
LPF2
1/2Vcc-AMP
DE-AMP2
BUFFER2
LPF1
MUTE SW
DE-EM SW
DE-AMP1
BUFFER1
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
GND
LPF OUTPUT1
LPF1B
MUTE CONTROL INPUT
DE-EMPHA CONTROL INPUT
DE-EMPHA CTL
DE-EMPHA OUT1
DE-EMPHA IN1
BUFFER OUT1
INPUT1

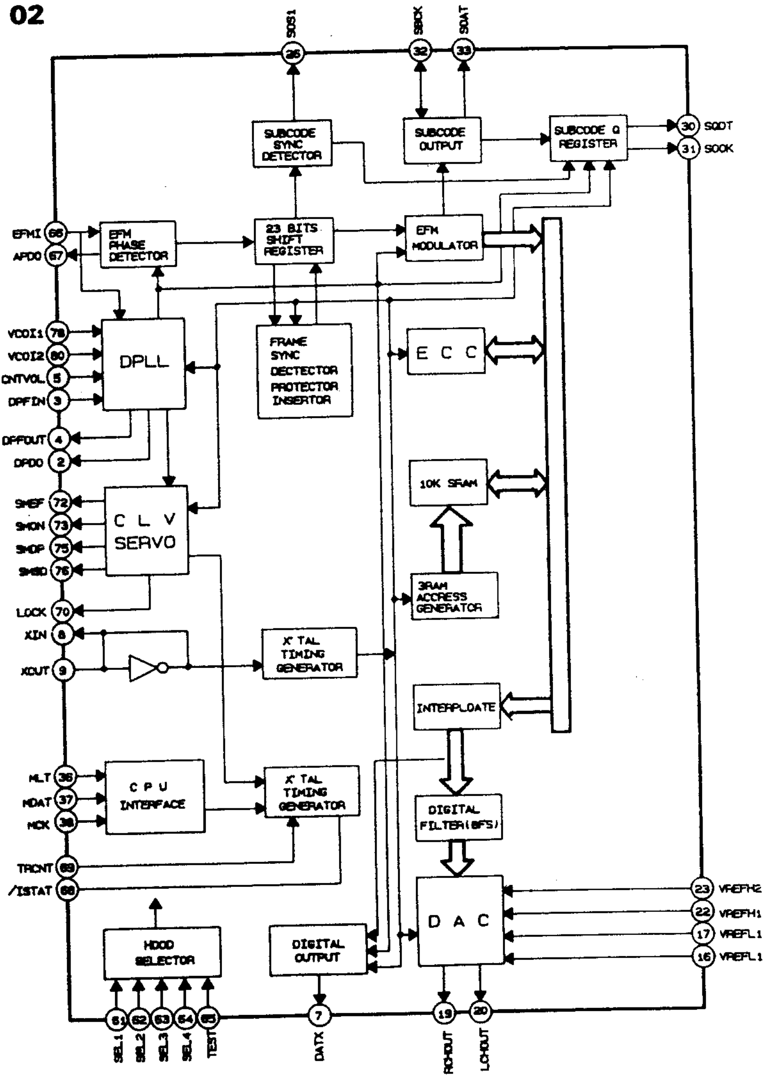
- KA9258 (WIC03)


28
27
26
25
24
23
22
GND
21
20
19
18
17
16
15
10K
VCC
VCC
10K
10K
10K
REGULATOR
T•S•D
10K
50K
CAIVER MUTE
LEVEL SHIFT
10K
10K
LEVEL SHIFT
10K
1
2
3
4
5
6
7
GND
8
9
10
11
12
13
14

• KA9220 (ASSP): WIC 01


ISET 22
APDI 35
BPF 26
EFMO 36
AASC 37
(S) DVEE 64
MCK 27
MLT 28
MDAT 29
RESET 30
DIRC 9
TRCNT 32
(S) AVEE 34
TEST1 6
ISTAT 33
PFSET 7
CBH 3
CPH 2
TESTH 5
SSTOP 8
SLEI 41
SLEO 40
SLEN 39
TEST2 42
10 AVCC(S)
54 TDF CT
47 TKEI
48 TKEO
72 AVCC(RF)
15 TGSW
16 RTG
50 ATS
51 TZC
52 TE2
53 TE1
49 N/C
20 FSCH
58 FDFCT
45 FCE
46 FSEO
FVC 24
VREG1 21
VREG 23
FBM 38
N/C 14
LOCK 31
SMPD 12
SMON 13
SMEF 25
DVCC(S) 55
SPDI 43
SPDLO 44
WDCH 11
FOK 59
TESTD 4
LDON 60
65 RF1
66 RFO
67 RF-
78 P/N
70 LD
71 PD
75 PD1
74 PD2
69 CV
73 N/C
77 F
76 E
62 E0
61 E1
68 RV
79 DCC2
80 DCC1
72 AVEE (RF)
63 FBIAS
57 FE1
56 FE2
19 HFGD
18 FSW
17 LFR
LOOP FILTER
EFM COMPARATOR
TIL TO CMOS
CMOS TO ITL
MIRR AMP & COMPARATOR
VREG & VIC
VCO 1-TIME
VCO 2-TIMES
CLV LPF
MICOM TO SERVO CONTROL AUTO SEQUENCER
FS1 TO4 TG1 TG2 TM1 TO7 PS1 TO4
TRACKING PHASE COMPENSATION
WINDOW COMPARATOR
TRACKING ERROR AMP
FOCUS PHASE COMPENSATION
DEFECT AMP & COMPARTOR
FOCUS OK AMP & COMPARTOR
APC AMP
RF AMP
FOCUS ERROR AMP
+
−

• KS9282 (DSP) : WIC 02


SOS1 26
SBCK 32
SQAT 33
SUBCODE SYNC DETECTOR
SUBCODE OUTPUT
SUBCODE Q REGISTER
30 SQDT
31 SQCK
EFMI 66
APDO 67
EFM PHASE DETECTOR
23 BITS SHIFT REGISTER
EFM MODULATOR
VCOI1 78
VCOI2 80
CNTVOL 5
DPFIN 3
DPLL
FRAME SYNC DECTECTOR PROTECTOR INSERTOR
E C C
DPFOUT 4
DPDO 2
10K SRAM
SMEF 72
SMON 73
SMDP 75
SMSD 76
C L V SERVO
3RAM ACCRESS GENERATOR
LOCK 70
XIN 8
XOUT 9
X' TAL TIMING GENERATOR
INTERPLOATE
MLT 36
MDAT 37
MCK 38
C P U INTERFACE
X' TAL TIMING GENERATOR
DIGITAL FILTER(8FS)
TRCNT 69
/ISTAT 68
D A C
23 VREFH2
22 VREFH1
17 VREFL1
16 VREFL1
MODE SELECTOR
DIGITAL OUTPUT
61 SEL1
62 SEL2
63 SEL3
64 SEL4
65 TEST
7 DATX
19 RCHOUT
20 LCHOUT

14. Electrical parts list

14-1. Main section

"⚠" indicates parts for circuit safe guarding purpose . Therefore when replacing be sure to use specified parts only.

Location no.	Code no.	Description	Specification	Q'TY	RER.
RR4	11018-277-223	R-CARBON	RD 1/4T 22K-J	1	
IR35	11018-377-151	R-CARBON	RD 0.5T 150-J	1	
RR5	11018-377-152	R-CARBON	0.5T 1.5K-J	1	
RR1,2	11018-377-220	R-CARBON	0.5T 22-J	2	
IR40	11018-377-390	R-CARBON	0.5T 39-J	1	
	11123-0045-00	HEAT SINK	SCM-7450 WHT T3	2	
IVR1,CVR1	11249-102-024	VR-SEMI TAPE-H	EVN CYA/EVN-DJAA03 B53	3	
JVR1,1L,1R	11249-102-044	VR-SEMI TAPE-H	EVN CYA/EVN-DJAA30 B24	1	
IVR2	11249-102-064	VR-SEMI TAPE-H	EVN CYA/EVN-DJAA30 B54	1	
RC4,8	11607-105-222	C-ELECTROLYTIC	MC SMS 25V 2200M	2	
POWER-IC	12119-101-290	IC-POWER AMP	TA8207K	1	
TUNER IC	12119-102-720	IC AM, FM IF	LA1851N	1	
EQ-IC FUNCTION-IC	12119-102-830	IC-MULTIPLEXER 4CHX2	TC4052BP	2	
PLL IC	12119-203-220	IC-FREQ SYNTHESIZER	LM7000	1	
QIC2,X,X	12119-401-630	IC-DUAL OPAMP	MC4558S/NJM4558S	3	
RIC2	12119-601-770	IC-REGULATOR	MC7805	1	
RQ1	12139-201-100	TRANSISTOR	KSA928A-Y/KTA1273-Y	1	
IQ9,10	12139-601-450	TRANSISTOR	2SK583 TAPE	2	
CQ1,2,LQ3,4,5,6	12149-101-520	TRANSISTOR	KSA733-Y,TAPE	6	
AQ1	12149-101-560	TRANSISTOR	KSA708-Y,TAPE	1	
AQ1L,1R,PQ1L,1R	12149-301-840	TRANSISTOR	KSC900-L, TAPE	4	
JQ1L,1R,2,3L5L,5R	12149-301-900	TRANSISTOR	KSC945-Y, TAPE	6	
JQ6L,6R,LQ2,7,OQ1,2				6	
PQ1,RQ5,6				5	
JQ2L,2R,3R,LQ1,RQ4, FQ1	12149-301-930	TRANSISTOR	KSC1008-Y,TAPE	6	
CQ3	12149-401-150	TRANSISTOR	KSD 471-Y,TAPE	1	
IQ3	12159-301-330	TR-DIGITAL	KSR2003/KRA103M TAPE	1	
IQ4	12159-301-780	TR-DIGITAL	KSR1003/KRC103M TAPE	1	
RD1,2,3,4,5,6,7,8,9,11	12169-201-080	DIODE-RECTIFIER	1N4001,TAPE	10	⚠
RD12,13,14,15,16,X,X				7	⚠
RZD4	12169-403-240	DIODE-ZN	1W9.4-10.6V UZP-10B	1	⚠
RZD6	12169-403-910	DIODE-ZN	1W11.4-12.6V UZP-12B	1	⚠
RZD2	12169-404-110	DIODE-ZN	RD5.6FB/UZP-5.6B	1	
IZD1,RZD7,10	12169-404-790	DIODE ZENER	500MW UZ-5.6BSB TAPING	3	
RZD8	12169-404-800	DIODE ZENER	500MW UZ-6.2BSB TAPING	1	
LR1	12429-070-130	COIL-CHOKE	AX 470UH-04	1	
JLF1L,1R	12429-206-102	BIAS TRAP	P126XC-7249Z	2	
IFT2	12619-030-005	COIL-CAN	AC 450KHZ YEL	1	
OL1	12619-047-203	COIL-CAN	AD 110UH 796KHZ RED	1	
IL1	12619-561-000	COIL-MW ANT	MURHN-K5268KAI 250MH	1	
LT1	12619-577-771	COIL BIAS OSC	PCHNS-5371EQJ	1	
	13303-500-620	TERMINAL-BOARD PUSH	4P PUSH HOOK	1	
PCW1	13349-103-053	CONNECTOR-WAFER	5267-05A 5P STICK	2	
CCW1	13349-103-103	CONNECTOR-WAFER	5267-10A 10P STICK	1	
X	13349-240-081	CONNECTOR-JUMP	2MM 51048-0800 8P	1	
X	13349-240-101	CONNECTOR-JUMP	2MM 51048-1000 10P	1	
X	13349-240-141	CONNECTOR-JUMP	2MM 51048-1400 14P	1	
RCW1	13349-512-562	CONNECTOR-WAFER	5267-04A 4P STICK	1	

Location no.	Code no.	Description	Specification	Q'TY	Remark
BCW1,JCW2,X	13349-512-565	CONNECTOR-WAFER	5267-06A 6P STICK	3	
X	13349-527-052	CONNECTOR-WAFER	5267-03A 3P STICK	1	
FCF1,3	14529-301-753	FILTER-CERAMIC	SFE 10.7 MS3G-A-TF 21	2	
IX1	14539-501-050	CRYSTAL	HC-49/U 7.2MHZ	1	
IX12	14539-504-100	CERAMIC RESONATOR	CSB 456F15	1	
	14709-241-110	FUSE	T250V 0.315A 20 EUR	1	⚠
	14709-241-160	FUSE	T250V 0.63A	1	⚠
ICF1	A1243-0049	FILTER-CERAMIC	BP450 + -1.0K ACFMF-450B	1	
RIC1	A4008-0106	IC-VOLT REGE	KIA7812PI TO-220	1	⚠
RQ2	A4050-0037	TR-GENERAL	KTC4369-Y 15W 3A 100MHZ	1	⚠
RZD3	A4106-0104	DIODE-ZENER	UZP-27B 25.5/30V 10MA T 1W	1	⚠
	B1290-0002	TUNER-FM	FE337-A05 3G 75/300 OHM	1	
RQ3	B4052-0036	TR-HIGH POWER	2SD1762-F 25W 3A 70MHZ	1	
	14529-301-750	FILTER-CERAMIC	SFE10.7MS3G-A	1	
	A3059-0006	TERMINAL-BOARD	SP-030 4P ANT	1	
	A6006-0187	POWER-CORD	KKP-419C KLCE-2F/0.75	1	⚠

14-2. Front section

Location no.	Code no.	Description	Specification	Q'TY	Remark
UR32	11018-277-181	R-CARBON	RD 1/4T 180-J	1	
UC5	11608-106-109	C-ELECTROLYTIC	SRE T 50V 1M(3X5)	1	
UC6	11608-106-228	C-ELECTROLYTIC	SRE T 50V 0.22M(3X5)	1	
UD10	12169-201-080	DIODE-RECTIFIER	1N 4001,TAPE	1	
REMOCON	12119-101-080	IC-FM IF	TA7411 AP	1	
X	12309-001-450	LED	SLR34VR TAPPING(RED)	1	
ULD5,6,7	12309-104-510	LED	SLR-34MG3 PI 3.1 GREEN	3	
	13322-0146-00	HOLDER-FLT	SCM-7450 T2 BLK ABS 94HB	1	
UCW3	13349-240-081	CONNECTOR-JUMP	2MM 51048-0800 8P	1	
UCW1	13349-240-101	CONNECTOR-JUMP	2MM 51048-1000 10P	1	
UCW4	13349-240-141	CONNECTOR-JUMP	2MM 51048-1400 14P	1	
UCW4	13349-511-554	CONNECTOR-WAFER	5268-06A	1	
USW13	A3012-0007	SW-ROTARY	1C2P 25MM NSH RK10K 1170 30V 0.1A	1	
	A4153-0074	V.F. DISPLAY	12-ST-04GK SCM7850	1	
	B1104-0540	C-ELEC	CE 92 W5.5V T 473-Z	1	
	B4002-0414	IC-MCU	LC866216-5669 SCM-7450	1	

14-3. CD section

Location no.	Code no.	Description	Specification	Q'TY	Remark
WR37	11018-277-101	R-CARBON	RD 1/4T 100-J	1	
WR30	11048-477-120	R-METAL	RS 1T 12-J	1	
WHT01	11124-0008-00	HEAT SINK	BSS T0.5 NTR RCD-1360	1	
WVR1,2,3,4	11249-102-044	VR-SEMI TAPE-H	EVN CYA/EVN-DJAA30 B24	4	
WC30	11609-103-102	C-ELECTROLYTIC	SR 16V 1000U(10X16)	1	
WIC04,05,06	12119-203-500	IC MOTOR DRIVER	LB1641	3	
WIC07	12119-601-160	IC-REGULATOR	TA78L005/MC 78L05AC	1	
WQ1,2	12139-201-100	TRANSISTOR	KSA928A-Y/KTA1273-Y TAPE	2	
XQ3	12159-301-330	TR-DIGITAL	KSR2003/KRA103M TAPE	1	
WQ5,6,7	12159-301-780	TR DIGITAL	KSR1003/KRC103M TAPE	3	
WD01,02,03,04	12169-301-290	DIODE-SW	1SS53/1N4148,CT:6PF	4	
WZD1	12169-403-200	DIODE-ZN	RD407E/UZ 4.7BM	1	
XZD1	12169-403-290	DIODE-ZN	50MW7.7-8.7V UZ-8.2BM	1	
WZD2,3	12169-404-800	DIODE ZENER	500MW UZ-6.2BSB TAPING	2	
WJW57	12429-211-120	COIL-CHOKE AXIAL LEAD	RES-1 Q40 LAL02 TB120K	1	
WCW11	13078-476-140	CONNECTOR WIRE-BSS	5264-06/5395-06 1007#26 400	1	
WCW5	16489-0009-00	WIRE-FLAT	UL2896-AP-1.25(0.1X0.8)	1	
XIC01	A4012-0064	IC-LINEAR	KA9270 DIP CD AUDIO	1	
WIC03	A4012-0169	IC-LINEAR	KA9258 SOP CD-4CH DRIVER	1	
WIC01	A4012-0290	IC-LINEAR	KA9220 QFP RF+SSP	1	
WIC02	A4012-0291	IC-LINEAR	KS9282 QFP DSP+DAC+DPLL	1	
WQ4	A4050-0156	TR-GENERAL	KSA733C-Y/KTA1266-Y 250	1	
WQ3,XQ2,5,4L,4R	A4050-0158	TR-GENERAL	KSC945C-L/KTC3198-BL 250	5	
WCW5	B6010-0972	CONNECTOR-WAFER	52045-2110 WHT	1	
AR4L,4R	11018-277-820	R-CARBON	RD 1/4T 82-J	2	
UQ2,3,4	12149-301-900	TRANSISTOR	KSC 945-Y,TAPE	3	
ULD1,2,3	12309-104-510	LED	SLR-34MG3 PI 3.1 GREEN	3	
	13088-476-125	CONNECTOR-WIRE/B.L	5264-06/JC25-06 1061 #26 250	1	
H/JACK	13339-120-020	JACK HEAD PHONE	LGT1506-0100 PI3.5	1	

15. List of Abbreviation

AC : Alternating Current
Addr : Address
ADJ. : Adjustment
AGC : Automatic Gain Control
ALC : Automatic Level Control
AM : Amplitude Modulation
AMP : Amplifier
AMPS : Automatic Music program Search
ANT. : Antenna
ASSY : Assembly

BAL : Balance
BLK : Black
BLU : Blue
BPF : Band Pass Filter
BRKT : Bracket

CF : Ceramic Filter
ch : channel
cm : centimeter
COM : Common
CON MIC : Condenser Microphone

D : Depth
D/A Convertor: Digital/Analog Convertor

dB : deciBel
DC : Direct Current
DEC : Decoder
DET : Decector
DEV : Deviation
DSP : Digital Signal Processor
DTS : Digital Tuning System

EA : Each
E-HEAD : Erase Head
EQ : Equalizer

FF : Fast Forward
F/F : Flip Flop
Fig : Figure
FM : Frequency Modulation
FREQ. : Frequency

GND : Ground
GRN : Green
GRY : Gray

H : Height, High
Hz : Hertz

IC : Integratde Circuit
IF : Intermediate Frequency
IFT : Intermediate Frequency Transformer
I/O : Input/Output

KHz : Killohertz
Kg : Killogram

L : Left, Low
LCD : Liquid Crystal Display
LED : Light Emiting Diode
LPF : Low Pass Filter
LW : Long Wave

Max : Maximum
MHz : Megahertz
min : Minimum
MOD : Modulation
MPX : Multipiex
MW : Medium Wave

NF or NFB : Negative Feedback

OP AMP : Operational Amplifier
ORG : Orange
OSC : Oscillator

PB : Playback
PCB : Printed Circuit Board
PLL : Phase Lock Loop
P/T : Power Transformer

R : Right
RAM : Random Access Memory
REC : Record
REG : Regulator
REW : Rewind
RF : Radio Frequency
ROM : Read Only Memory
R/P : Record/Play

sec : Second
SSG : Standard Signal Generator
SSP : Servo Signal Processor
ST : Stereo
ST/EJT : Stop/Eject
SW : Switch, Short wave

TP : Test Point
TR : Transistor
TRANS : Transformet

V : Volt
VIO : Violet
VCO : Voltage Controlled Oscillatro
VOL : Volume
Vpp : Voltage peat or peak
VR : Volume
Vref : Reference Voltage

V/SEL : Voltage selector
VTVM : Vaccum Tube Volt Meter
VVC : Voltage Variable Capacitance

W : Watt or Weight
WHT : White